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ABSTRACT

This bibliography provides a consolidated list of papers, reports, articles, and publications produced by Unesco in the field of space communications; it incorporates two previous bibliographies compiled in 1970 and 1973. Listed in alphabetical order by authors' names or titles, citations include extracts from periodicals and publications, isolated Unesco General Conference documents, Executive Board documents and publications, and reports prepared by Unesco experts, which are listed according to country or continent visited. Papers prepared by Unesco for participation in meetings, colloquiums, conferences, and working groups organized by other organizations are classified according to the title of the meeting. Documents prepared for meetings organized by Unesco, also classified according to title of the meeting, include working papers contributed to the meeting by outside bodies; the final report of the meeting is the first document abstracted. Languages in which each item was published are indicated, and a title index with cross references is included. (CWM)

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The purpose of this bibliography is to provide a consolidated list of papers, reports, articles and publications produced by Unesco in the field of space communication. It incorporates two previous bibliographies compiled in 1970 and 1973.

Most of the documents listed are not available for free distribution. They can be consulted, however, in our Mass Communication Documentation Centre and also in most Unesco depositary libraries. Recent issues, where the price is indicated, can be purchased from Unesco sales agents.

The list is compiled in alphabetical order of authors' names or titles and includes the following types of material:

(a) Extracts from periodicals and publications.

(b) Documents prepared for meetings organized by Unesco. These are classified according to the title of the meeting and include working papers contributed to the meeting by outside bodies. The final report of the meeting is the first document abstracted.

(c) Papers prepared by Unesco for participation in meetings, colloquiums, conferences and working groups organized by other organizations. These are also classified according to the title of the meeting.

(d) Reports prepared by Unesco experts appear under "Unesco expert missions", listed according to country or continent visited.

(e) Isolated Unesco General Conference documents, Executive Board documents and publications related to the field of space communication.

Readers will find at the end of this bibliography an alphabetical index of all the documents listed by title together with cross references.

001 ABDEL-GHANI, A.H. "Man and space, a great international venture". In: *The Unesco Courier* (Paris), May 1966, pp. 5-6.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/6-stg.; 30 cents; 1 F.

Description of the activities of organizations concerned in the field of outer space exploration. The United Nations Committee on the Peaceful Uses of Outer Space occupies a special position in the extensive network of organizations active in this field. Because of its central position, the Committee is well placed to make an overall survey of international co-operation efforts in the space field.

ADISESHIAH, Malcolm S.
See under Entry No. 129

002 ALISJAHBANA, Iskandar. *A satellite communication system for domestic and regional development in South East Asia*. Bandung, Institut Teknologi Bandung, 1967. 153 p. incl. Tables and Maps. (processed).

Study prepared by the Bandung Institute of Technology under contract with Unesco. An attempt has been made to analyse the effects of the rapid progress and development made in communication technology in Indonesia. A satellite communication system seems to deserve first consideration for employment in improving the quality of education and to be carried out in such a way as to be able to involve the total available national potential. This will not be possible unless educational authorities are prepared to use the most modern mass media equipment, such as audio-visual aids. By means of these aids the needs of teachers in general and particularly of high-quality education is expected to be met. It is suggested not to carry out this project of satellite telecommunication as a pilot project but rather as an overall one, to be completed in stages. It would be well to give it a multi-purpose nature, firstly to provide necessary educational equipment, secondly for communication of 10 to 100 voice channels between Jakarta and the capitals of the provinces, and thirdly to complete facilities in the services of the Ministry of Information. Considerations have been put forth as to the reason for the choice of a regional satellite telecommunication network, which meets the domestic telecommunication needs of the participating countries as well as those of the regional traffic in South East Asia.

003 *An annotated bibliography of United Nations publications and documents relating to Unesco's activities in the field of space communication 1947-1974*. Paris, Unesco, 1974. 64 p. (COM.74/WS/12).

This bibliography contains documents published by the United Nations relating to space communication having a bearing on Unesco's field of interest. These documents issued in English, French, Spanish and Russian (some also in other languages) are classified in chronological order under the following subdivisions: I. First Committee of the General Assembly; II. Resolutions of the General Assembly; III. Committee on the Peaceful Uses of Outer Space; IV. Subcommittees of the Committee on the Peaceful Uses of Outer Space (Working Group on Direct Broadcast Satellites - Scientific and Technical Subcommittee - Legal Subcommittee); V. Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 1968; VI. Economic and Social Council; VII. Administrative Committee on Co-ordination; VIII. Publications. Appended also are an alphabetical index by title and a serial listing by reference number.

004 *Approved programme and budget.* Paris, Unesco, 1964- . (12 C/5- .C/5). Also published in Ar., Esp., Fr., Rus.

Unesco's activities in the field of space communication are outlined under the chapter "Use of space communication to further Unesco's aims" (as from 1963) in these documents which are intended primarily to guide the Secretariat in the detailed planning, co-ordination and execution of the programme and budget as adopted by the General Conferences. They include the following resolutions together with work plans and budget estimates as noted or amended by the competent organs of the General Conferences: 4.2123 (1965-1966); 4.14 (1967-1968); 4.13 (1969-1970); 4.13 (1971-1972); 4.11 (1973-1974); 4.121 (1975-1976); 4.15 (1977-1978).

ARAB STATES BROADCASTING UNION (ASBU)
See under Entry No. 108

ARAUJO e OLIVEIRA, João Batiste
See under Entry No. 244

ASIAN BROADCASTING UNION (ABU)
See under Entries No. 033, 111, 112

005 **AUGER, Pierre.** "Europe's growing stake in space science". In: *The Unesco Courier* (Paris), May 1966, pp. 24-26.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/6-stg.; 30 cents; 1 F.

Article showing the great strides made since 1964 by the European Space Research Organization (ESRO) and the European Launcher Development Organization (ELDO). A pooling of resources that makes it possible to carry out an international project is today represented by various collective European programmes set up by those two intergovernmental organizations.

006 _____. /"Recommendation in the field of space research"/. In: *Current trends in scientific research;* survey of the main trends of inquiry in the field of natural sciences, the dissemination of scientific knowledge and the application of such knowledge for peaceful ends. New York, United Nations; Paris, Unesco, 1962. p. 226.
Also published in Esp., Fr. $6.75; 33/-stg.; 23 F.

The value of space research in all its aspects is clearly international in character. It remains to consider what might be the most suitable forms of regional or world collaboration. The United Nations has already decided to convene an international conference but research itself would benefit considerably by intergovernmental collaboration because the apparatus involved is very difficult to construct, necessitating a large staff of skilled workers and heavy expenditure.

007 _____. "Transmission of information through various media". In: *Current trends in scientific research;* survey of the main trends of inquiry in the field of the natural sciences, the dissemination of scientific knowledge and the application of such knowledge for peaceful ends. New York, United Nations; Paris, Unesco, 1962. p. 198.
Also published in Esp., Fr. $6.75; 33/-stg.; 23 F.

Research on long-distance links by very-short-wave radio, using the moon or artificial satellites as passive reflectors or active retransmitters; this type of link appears to have great prospects for the routing of many telephone messages or for long-distance television, especially across the Atlantic.

BANDUNG INSTITUTE OF TECHNOLOGY
See under Entry No. 002

008 BEAN, Alan L. "The value of manned flights to the moon". In: *Impact of Science on Society* (Paris), Vol. XXI, No. 2, 1971, pp. 105-112.
Also published in Esp., Fr. $1.25; 40 p. (stg.); 5 F.

Is the entire programme of sending men to the moon, of sending men out as space explorers, an immense waste of resources urgently needed on earth? To this question, vehemently argued today, astronaut Bean of the moon-landing Apollo 12, answers: the returns fully justify the effort. The moon-landings have provided both major tangible benefits to American technology, education and medicine, and equally important intangible benefits to Americans and to all men: restored American pride and prestige; helped promote a common sense of identity in the world's peoples; and, in meeting this great challenge of space, have made life on earth itself more meaningful.

009 BEHRSTOCK, Julian. "Traffic jam on the broadcasting bands". In: *The Unesco Courier* (Paris), September 1959, p. 9.
Also published in Esp., Fr., Rus. 1/-stg.; 30 cents; 0.60 F.

The world radio conference, sponsored by the International Telecommunication Union, held in Geneva, 1959, has marked a further and perhaps decisive step in an effort dating back more than 30 years to reach world agreement on frequencies. Demands for high frequencies are more and more in excess of available resources. /This situation will improve with the development of communication satellites./

_____.
See also under Entries No. 066, 238

BERRADA, A.
See under Entry No. 268

BEYNON, W.J.G.
See under Entry No. 233

010 BLAGONRAVOV, Anatoly. "It does not matter who reaches the moon first; what counts is the benefit to man". In: *The Unesco Courier* (Paris), May 1966, pp. 7-12.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/6-stg.; 30 cents; 1 F.

United States and Soviet contributions to the conquest of space. In a relatively short time earth satellites, spaceships and interplanetary stations have provided scientific material of tremendous value. Space research is a branch of science in which all mankind has a stake. In the final analysis, the results of the research should benefit all people the world over, irrespective of which country obtains them.

BLEVIS, B.C.
See under Entry No. 259

011 BLUMRICH, Josef F. "The spaceships of the prophet Ezekiel" and "Ezekiel makes his own wheel". In: *Impact of Science on Society* (Paris), Vol. XXIV, No. 4, 1974, pp. 329-336.
Also published in Esp., Fr., $3; £1-stg.; 8.50 F.

In "The spaceships of the prophet Ezekiel" the author states that references in some holy scripture to strange machines have prompted, throughout history, speculation and conjecture in order to lend acceptable, if not rational, explanations of the phenomena reported. Modern technical knowledge

and test procedures have been used to reconstruct a model of what was seen and experienced by one of the four great Jewish prophets two-and-a-half millennia ago. In "Ezekiel makes his own wheel" it is related that if intelligent beings came from beyond our globe to make contact with humans, as the prophet Ezekiel would have us believe, modern man has taken steps to make informative contact with beings beyond our world. (Fig. 1: Artist's reconstruction of spaceship seen by Ezekiel, viewed from a distance of about 60 metres; Fig. 2: Engineering depiction of the spacecraft shown in Fig. 1; Fig. 3: Patent awarded to the author for his invention of the omnidirectional wheel; Fig. 4: Sketch made from a Schlieren photograph of a test model of "Ezekiel's spaceship" as tested in the wind tunnels of NASA's Langley Research Center during the late 1960's; Fig. 5: Details of mechanical arm and control rockets, both housed in each of the four helicopter units.)

BOCK, Paul
See under Entry No. 237

BOLT, F.D.
See under Entry No. 105

012 BRITISH INTERPLANETARY SOCIETY SYMPOSIUM. "Space communication for education purposes", Southampton, September 1972. *International co-operation for space broadcasting* by E. Lloyd Sommerlad. Paris, Unesco, 1972. 7 p. (FF/2236/0109).

Issued also in: *Spaceflight* (London), Vol. 15, No. 3, March 1973. pp.107-109 and 118.

Paper presented by Unesco and review of the progress made in the field of international co-operation following closely upon technological developments over the past century. The key question is whether technological achievement will be applied to help solve the urgent global problems that threaten world peace and progress. This will require international agreement on technical, legal, political and administrative levels, as well as co-operative action in space applications. Significant contribution to co-operation in this field has been made by the United Nations, the International Telecommunication Union, Unesco (study of the cultural and social impact of satellite broadcasting - preparation of a draft declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange - regional surveys undertaken in Latin America, the Arab States and Africa south of the Sahara) and by non-governmental organizations at the professional level (Eurovision, intervision, etc.).

013 "Broadcasting from satellite". In: *Unesco Chronicle* (Paris), Vol. XVIII, No. 5, May 1971, pp. 191-192.
Also published in Ar., Esp., Fr. $0.30; 10 p.(stg.); 1.20 F.

Article stating that it is essential that close co-operation be maintained between the three international organizations concerned with this new technology; the United Nations, the International Telecommunications Union and Unesco. Unesco has a major role to play as the international organization which, more than any other, is concerned with the uses of satellite communication. Mention is made of the intergovernmental meeting of experts (1969) which examined the types of international arrangements and conventions necessary to promote the fullest possible use of space communication and a description of the publication "broadcasting from satellites" which contains, inter alia, the discussions which took place at that meeting is given.

014 Broadcasting from space. Paris, Unesco, 1970 [66] p. incl. Annex]. (Reports and Papers on Mass Communication, No. 60).
Also published in Fr. $1.50; 45 p.(stg.); 6 F.

The report of the Unesco Meeting of Government Experts on International Arrangements in the Space Communication Field, held in December 1969, published in this handbook brings together the opinions of a widely representative and highly informed group of people. The report is accompanied by the working papers presented to the meeting by the United Nations and the International Telecommunication Union, as well as a special address by the noted British science writer and Kalinga Prizewinner, Arthur C. Clarke. There is a foreword by Olof Rydbeck, Director-General of the Swedish Broadcasting System, who is Chairman alike of the United Nations Working Group on Direct Broadcast Satellites and the Unesco Panel of Consultants on Space Communication. (Annex: List of participants.)

015 "Broadcasting and space communication". In: *Unesco Chronicle* (Paris), Vol. XVIII, No. 2, February 1972, p. 73.
Also published in Ar., Esp., Fr. $0.30; 10 p.; 1.20 F.

Reference is made to a meeting at Unesco Headquarters, in October 1971, of 20 experts to study international professional arrangements for space broadcasting. The chief subjects of discussion were exchanges of programmes between broadcasting organizations, the possibilities offered by space communication to increase the flow of news and information, and the implications for broadcasters and news organizations of the decisions taken at the World Administrative Radio Conference for Space Telecommunication. Experts emphasized the importance of the survey conducted by Unesco among regional broadcasting unions. The meeting also studied a preliminary draft declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange.

016 BUEDELER, Werner. "Into outer space on radio waves". In: *The Unesco Courier* (Paris), September 1959, pp. 14-15.
Also published in Esp., Fr., Rus. 1/-stg.; 30 cents; 0.60 F.

Messages from outer space have been recorded and scientifically evaluated. In this way, a new science - radio astronomy - has come into being. Special receiving antennae have been constructed in order to pick up the faintest noise from cosmic space. First, astronomers discovered radio communication in space, then they tried to send man-made radio waves into space; finally radio contact could be established with the moon. Radio waves in outer space came into their true glory with rocket exploration of the upper atmosphere and the launching of artificial earth satellites.

BUREAU FOR THE PROTECTION OF INTELLECTUAL PROPERTY (BIRPI) (now WORLD INTELLECTUAL PROPERTY ORGANIZATION (WIPO))
See under Entries No. 022-043, 045, 047, 072-079

BYSTROM, J.
See under Entry No. 197

CAMPBELL, Harry C.
See under Entry No. 144

CANADIAN BROADCASTING CORPORATION
See under Entry No. 111

CASSIRER, Henry R.
See under Entries No. 071, 267

017 CHANDER, Romesh and KARNIK, Kiran. *Planning for satellite broadcasting.* The Indian Instructional Television Experiment. Paris, Unesco, 1976, 71 p. incl. Annexes. (Reports and Papers on Mass Communications, No. 78). Also published in Fr.

The main purpose of this Report is to share India's experience in preparing for SITE, particularly with those who are planning domestic broadcast satellite systems. The SITE programme concentrated on national integration, upgrading and expanding education, health and nutrition, population control, modernizing agriculture, creating a scientific awareness. The report is presented under the following headings: I. Brief history of SITE; II. Design of the experiment; III. Village selection; IV. Direct reception system; V. Programme objectives; VI. Mechanics of programming; VII. In-service teacher-training programme; VIII. Social research and evaluation; IX. Technical evaluation; X. International collaboration. (Annexes A-G: India - U.S. SITE agreement. Earth stations and rediffusion facilities. Programme schedules. Material for school programmes. Audience profile research. Evaluation reports. Impact survey.)

018 CLARKE, Arthur C. "The challenge on the spaceship". In: *Impact of Science on Society* (Paris), Vol. IV, No. 1, 1953, pp. 15-28. Also published in Esp., Fr.

Revised edition issued in: *The Unesco Courier* (Paris), November 1957, pp. 22-26. Eng., Esp., Fr. Rus. 1/-stg.; 30 cents; 0.50 F.

This article describes the situation as it is seen in 1953 by one of the experts in the field and includes a number of predictions which then seemed rash but which have since been realized. This article envisaged the possible implications of space travel on the social and political plans.

019 _____. "The world of the communications satellite". In: *The Unesco Courier* (Paris), November 1966, pp. 24-29. Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/6-stg.; 30 cents; 1 F.

Most of the human race exists in a cultural vacuum; it is still divided into myriads of insulated villages or tribes, as it has been since the dawn of history. But now, in a brief moment of time, all this will end. The coming of the communications satellites will make it impossible for any human group - indeed, any individual - to be more than a few milliseconds from any other. The social consequences of this, for good or evil, may be as great as those brought about by the printing press or the internal combustion engine, and they will come upon us much more swiftly.

_____.

See also under Entries No. 133, 148

020 CLASSEN, Hans George. "Remote sensing via satellite: The Canadian experience". In: *Impact of Science on Society* (Paris), Vol. XXIV, No. 3, 1974, pp. 213-220. Also published in Esp., Fr. $3; £1-stg.; 8.50 F.

Remote sensing, meaning here the scanning of the earth's surface from aircraft or satellites, is a new technology particularly applicable to a country such as Canada; there, a vast territory rich in natural resources shelters a sparse and scattered population. The launching of the Earth Resources Technology Satellite by the National Aeronautics and Space Administration of the United States has provided Canadian scientists and specialized planners with a valuable new method to survey the land and water endowments of their enormous land as well as the natural and man-made processes affecting these. (Fig. 1: Development of remote-sensing techniques.)

CLERGERIE, B.
See under Entries No. 268, 269, 270

COCCA, Aldo Armando
See under Entry No. 120

021 COLLOQUIUM ON THE UNITED NATIONS AND THE LEGAL PROBLEMS OF SPACE, Constance, October 1970. *The use of space communication for information, education and cultural exchange.* Paris, Unesco, 1970. 10 p.

Unesco Secretariat report to the International Institute of Space Law of the International Astronautical Federation. It provides an outline of Unesco's programme in the space communication field namely: Types of satellite systems - The need for international co-operation - Applications of space communication in Unesco's fields (collection and dissemination of news; educational broadcasting; cultural and scientific uses) - Problems of copyright and protection of the broadcast signal - The promotion of international agreements.

COMMITTEE ON AERONAUTICAL AND SPACE SCIENCES (UNITED STATES SENATE)
See under Entry No. 275

022 COMMITTEE OF GOVERNMENTAL EXPERTS ON PROBLEMS IN THE FIELD OF COPYRIGHT AND OF THE PROTECTION OF PERFORMERS, PRODUCERS OF PHONOGRAMS AND BROADCASTING ORGANIZATIONS RAISED BY TRANSMISSION VIA SPACE SATELLITES, Lausanne, April 1971. *Report.* Paris, Unesco; Geneva, WIPO, 1971. /52 p. incl. Annexes/. (UNESCO/WIPO/SAT/22). Also published in Esp., Fr., Rus.

Issued also in: *Copyright Bulletin* (Paris), Quarterly Review, Vol. V, No. 2, 1971, pp. 3-24 (INLA.71/III.56/A). Eng., Esp., Fr.

The object of the meeting was to study the problems which radio and television transmissions by satellites raise in the field of copyright and of the protection of performers, of producers of phonograms and of broadcasting organizations, and to specify whether the protection of television signals transmitted by communications satellites requires modification of existing conventions or the preparation of a new international instrument. (Annex A: Draft Convention to prohibit the unauthorized distribution of programme-carrying signals communicated by satellites; Annex B: Draft protocol added to the Rome Convention for the protection of performers, producers of phonograms and broadcasting organizations, concerning the prohibition of the unauthorized distribution of signals transmitted by means of communications satellites; Annex C: Resolution; Annex D: List of participants).

023 _____. *Communication from the International Telecommunication Union* (ITU) Paris, Unesco; Geneva, WIPO, 1971. /5 p. incl. Annexes/. (UNESCO/WIPO/SAT/9). Also published in Esp., Fr., Rus.

Document containing the following letters which permitted the Committee to obtain additional information concerning the possibility of finding appropriate solutions within the framework of the ITU Radio Regulations with regard to copyright problems arising from communication by satellites: (a) letter addressed to the Secretary-General of the International Telecommunication Union by the Directors-General of Unesco and WIPO; (b) letter addressed to the Directors-General of Unesco and WIPO by the Vice Secretary-General of the International Telecommunication Union. (Annexes: World Administrative Radio Conference for Space Telecommunications, Geneva, 1971. Note by the Secretary-General. Agenda for the Conference).

024 COMMITTEE OF GOVERNMENTAL EXPERTS ON PROBLEMS IN THE FIELD OF COPYRIGHT AND OF THE PROTECTION OF PERFORMERS, PRODUCERS OF PHONOGRAMS AND BROADCASTING ORGANIZATIONS RAISED BY TRANSMISSION VIA SPACE SATELLITES, Lausanne, April 1971. *Introductory report prepared by the Unesco Secretariat.* Paris, Unesco, 1971. 10 p. (UNESCO/WIPO/SAT/3). Also published in Esp., Fr., Rus.

The main object of this report is to provide: I. general information on the technical aspects of radio and television transmissions by communication satellites, and II. an outline of the action, preceding the work of the present Committee of Governmental Experts, taken by Unesco and the United International Bureau for the Protection of Intellectual Property (BIRPI - which has since become the World Intellectual Property Organization (WIPO) with a view to solving the problems raised by this type of transmission.

025 _____. *Questions to be considered.* Memorandum prepared by the International Bureau of WIPO. Paris, Unesco; Geneva, WIPO, 1971. 15 p. (UNESCO/WIPO/SAT/4).
Also published in Esp., Fr., Rus.

Document on the desirability of establishing an international regulation for the protection of television and radio signals particularly when they are transmitted by space satellites, as well as on the possible contents and form of such a regulation. It uses the word "regulation" since it does not wish to and does not, take a position on what form the proposed regulation should take. Another question with which this document deals is whether any country or only countries party to the Berne Convention for the Protection of Literary and Artistic Works or to the Universal Copyright Convention should be able to become party to the instrument which will contain the proposed regulation.

026 _____. *Study on the problems arising from wireless and television broadcasts transmitted by space satellites in relation to the protection of broadcasting organizations* by Georges Straschnov. Paris, Unesco; Geneva, WIPO, 1971. 10 p. incl. Annex. (UNESCO/WIPO/SAT/8).
Also published in Esp., Fr., Rus.

Report on the protection of television signals transmitted by satellite. It starts by providing definitions to clarify the terminology used, followed by reference to previous expert meetings. The author does not consider that the Rome Convention offers a valid approach to the desired protection. The protection of signals is of a strictly juridical character and concerns satellites of any type whatsoever, and the establishment of a treaty providing such protection is a matter for non-political intergovernmental organizations such as BIRPI and Unesco. The "protection of receiving States and the general public" is of a political nature and affects only direct broadcast satellites whose signals are receivable by ordinary domestic equipment, and the institution of such protection is the responsibility of political bodies such as the United Nations. It would be disastrous if the protection under consideration in this document were to be yoked together with "the protection of receiving States and the general public" against signals of foreign origin transmitted or retransmitted by direct broadcast satellite. (Annex: Extract from document COM/SPACE/4 submitted to the meeting of governmental experts on international arrangements in the space communication field).

027 COMMITTEE OF GOVERNMENTAL EXPERTS ON PROBLEMS IN THE FIELD OF COPYRIGHT AND OF THE PROTECTION OF PERFORMERS, PRODUCERS OF PHONOGRAMS AND BROADCASTING ORGANIZATIONS RAISED BY TRANSMISSION VIA SPACE SATELLITES, /1st/, Lausanne, April 1971. *Study on the problems arising from wireless and television broadcasts transmitted by space satellites in relation to the protection of performers* by Rolf Rembe. Paris, Unesco; Geneva, WIPO, 1971. 7 p. (UNESCO/WIPO/SAT/6).
Also published in Esp., Fr. Rus.

As a summary of the considerations developed in this document, the following conclusions are drawn by the author: I. The problems facing performers as a result of satellite relays are not new in nature, only in scope. II. There is no basis for fears that piracy against satellite relays should be any real danger within the foreseeable future. III. The Rome Convention, although not ideal in its present form, presents an indispensable basis for the protection of the performer's interests. IV. The answer to the present situation must be to develop, as quickly as possible, the Rome Convention into a world-wide instrument. V. It will be an urgent task for WIPO, ILO and Unesco to set up a service organization for the benefit of governments in regard to the Rome Convention. VI. The defence of the performers' interests must be related to the needs of the performers' professions, the need of any culture to have professional performers and the need for any country to have and develop a culture of its own.

028 _____. *Study on the problems arising from wireless and television broadcasts transmitted by space satellites in relation to the protection of producers of phonograms* by Stephen M. Stewart LL.D. Paris, Unesco; Geneva, WIPO, 1971. 16 p. (UNESCO/WIPO/SAT/7).
Also published in Esp., Fr., Rus.

The author draws the conclusion that of the two existing Conventions the ITU would need far more radical changes as the whole substratum of the Convention would have to be altered by protecting the contents of the signal instead of merely the container. Furthermore a complete system of sanctions would have to be added to the Convention. The Rome Convention, on the other hand, only needs very minor changes, if any. Ergo: Conclusion No. 1: Of the existing Conventions the Rome Convention is best suited for the purpose. Conclusion No. 2: If a new Convention is contemplated it would have to contain both property rights and criminal provisions. Conclusion No. 3: For both legal and technical reasons a new Convention protecting satellite broadcasts would be of a merely temporary nature to fill the gap until either the Rome Convention has been sufficiently widely ratified or the third stage of satellite broadcasting, has been reached, whichever is earlier. Thus in making the final choice between the Rome Convention (Conclusion No. 1) and a new Convention (Conclusion No. 2) the time factor (Conclusion No. 3) will be decisive. It is therefore suggested that the most up-to-date and the most accurate forecast which leading technical bodies working in this field can give should be obtained before that final choice be made.

029 _____. *Study of problems in the field of copyright raised by radio and television transmission via communication satellites* by Roger Fernay. Paris, Unesco; Geneva, WIPO, 1971. 14 p. (UNESCO/WIPO/SAT/5).
Also published in Esp., Fr., Rus.

The purpose of this report is to attempt a reply to the following questions: Does this stage of space satellites to transmit radio and television broadcasts justify a complete review of the principles on which copyright is based? - Does it necessitate any adjustments in or departures from those principles calling for an alteration in the texts in force? - Are there aspects of it which are not covered by current regulations? - Is it accordingly necessary to envisage the creation of a specific instrument? - To this

end the following aspects of the problem are considered: I. The factual situation; II. The difficulties which seem bound to arise (in the near future "distribution satellites" and in the more distant future "direct broadcasting satellites"); III. The attitude of the broadcasting organizations; IV. The implications of that attitude. Finally an attempt is made to draw certain conclusions.

See also under Entries No. 090, 183, 185.

030 COMMITTEE OF GOVERNMENTAL EXPERTS ON PROBLEMS IN THE FIELD OF COPYRIGHT AND OF THE PROTECTION OF PERFORMERS, PRODUCERS OF PHONOGRAMS AND BROADCASTING ORGANIZATIONS RAISED BY TRANSMISSION VIA SPACE SATELLITES (2nd), Paris, May 1972. *Report*. Paris, Unesco; Geneva, WIPO, 1972. /27 p. incl. Annexes/. (UNESCO/WIPO/SAT.2/14 & Corr.1). Also published in Esp., Fr., Rus.

Issued also in: *Copyright Bulletin* (Paris), Quarterly Review, Vol. VI, No. 2, 1972, pp. 5-32 (INLA.72/III.60/A). Eng., Esp., Fr.

The purpose of this meeting, as at the previous meeting in Lausanne (UNESCO/WIPO/SAT/22) was to study the problems that radio and television transmissions by satellites raise in the fields of copyright and of the protection of performers, of producers of phonograms, and of broadcasting organizations, and to specify whether the protection of programme-carrying signals transmitted by communications satellites require modification of existing Conventions or the preparation of a new international instrument. (Annex A: Draft Convention against the unauthorized distribution of programme-carrying signals transmitted by satellites. Annex B: Resolution. Annex C: List of participants).

031 _____. Address by René Maheu. Paris, Unesco, 1972. 4 p. (DG/72/7). Also published in Fr.

Address by the Director-General of Unesco to the Committee which he convened jointly with the Director-General of the World Intellectual Property Organization to determine, in particular, whether the protection of television signals transmitted by communication satellites does or does not require either the modification of existing Conventions or the preparation of a new international instrument. After giving background information of use to the Assembly in the pursuit of its objective (which was formally that of the First Committee of Governmental Experts) he outlines the extensive responsibilities assumed by Unesco in the field of space communication (in education - science and technology - cultural exchange - the preparation of a draft declaration of guiding principles for the use of space communication for the free flow of information, the spread of education and greater cultural exchange, and the promoting of international arrangement and conventions in these fields). Details concerning the reorganization of the Copyright Section within the Unesco Secretariat are also announced.

032 _____. *Comments received from governments*. Paris, Unesco; Geneva, WIPO, 1972 /15 p. incl. Addenda/. (UNESCO/WIPO/SAT.2/4 & Add. 1-2). Also published in Esp., Fr., Rus.

Replies received from the governments of the following States on the matters to be considered by the Second Committee (in accordance with the resolution adopted by the First Committee of Governmental Experts, which met in Lausanne in April 1971): Algeria, Chad, Denmark, Holy See, Italy, Japan, Kenya, the Netherlands, Spain and the United Kingdom. The replies are reproduced showing the source of the communication but omitting the customary formal openings and conclusions.

033 COMMITTEE OF GOVERNMENTAL EXPERTS ON PROBLEMS IN THE FIELD OF COPYRIGHT AND OF THE PROTECTION OF PERFORMERS, PRODUCERS OF PHONOGRAMS AND BROADCASTING ORGANIZATIONS RAISED BY TRANSMISSION VIA SPACE SATELLITES (2nd), Paris, May 1972. *Comments received from intergovernmental or international non-governmental organizations.* Paris, Unesco; Geneva, WIPO, 1972. /19 p. incl. Addenda/. (UNESCO/WIPO/SAT.2/5 and Add. 1-2).
Also published in Esp., Fr., Rus.

Document referring to the observations received from the following organizations on the matters to be considered by the Second Committee: Asian Broadcasting Union (ABU), European Broadcasting Union (EBU), International Copyright Society (Internationale Geselschaft für Urheberrecht - INTERGU), International Federation of Actors (FIA), International Federation of Musicians (FIM), International Federation of the Phonographic Industry (IFPI), International Federation of Translators (FIT), International Labour Office (ILO), International Literary and Artistic Association (ALAI), International Writers' Guild (IWG).

034 _____. *Report of the Committee of Governmental Experts which met at Lausanne from 21 to 30 April 1971.* Paris, Unesco; Geneva, WIPO, 1972. /51 p. incl. Annexes/. (UNESCO/WIPO/SAT.2/3).
Also published in Esp., Fr., Rus.

Report UNESCO/WIPO/SAT/22 adopted by the First Committee of Governmental Experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites (convened jointly by the United Nations Educational, Scientific and Cultural Organization (Unesco) and the World Intellectual Property Organization (WIPO), at Lausanne in 1971) attached as an annex to the present document.

035 _____. *Resolution adopted by the Intergovernmental Committee of the International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations at its third ordinary session (Geneva, November 1971),* Paris, Unesco; Geneva, WIPO, 1972. /3 p./. (UNESCO/WIPO/SAT.2/INF.4).
Also published in Esp., Fr., Rus.

Text of the resolution reproduced in an annex to the present document.

036 _____. *Resolution adopted respectively by the Intergovernmental Copyright Committee and the Executive Committee of the Berne Union at their eleventh ordinary session and first extraordinary session (Geneva, November 1971).* Paris, Unesco; Geneva, WIPO, 1972. 2 p. (UNESCO/WIPO/SAT.2/INF.3).
Also published in Esp., Fr., Rus.

Text of the resolution reproduced in an annex to the present document.

See also under Entry No. 183

037 COMMITTEE OF GOVERNMENTAL EXPERTS ON PROBLEMS IN THE FIELD OF COPYRIGHT AND OF THE PROTECTION OF PERFORMERS, PRODUCERS OF PHONOGRAMS AND BROADCASTING ORGANIZATIONS RAISED BY TRANSMISSION VIA SPACE SATELLITES (3rd), Nairobi, Kenya, July 1973. *Report.* Paris, Unesco; Geneva, WIPO, 1973. /33 p. incl. Annexes/. (UNESCO/WIPO/SAT.3/23). Also published in Esp., Fr., Rus.

Issued also in: *Copyright Bulletin* (Paris), Quarterly Review, Vol. VII, No. 4, 1973, pp. 8-46. Eng., Esp., Fr., Rus.

Committee convened jointly by the Directors-General of the United Nations, Educational, Scientific and Cultural Organization and of the World Intellectual Property Organization, and which report, after the general discussion, deals with the following: I. Consideration of procedure; II. Philosophy and legal framework of the Draft Convention; III. Draft Convention (Title, Preamble, Articles 1-12: Subject matter and obligation, Definitions, Duration, Exceptions, Non-retroactivity, Safeguard of interests of contributors to programmes, Prevention of abuse of monopolies, Application of the convention, Entry into force, Denunciation, Reservations, Notifications); IV. Resolution adopted by the Committee. (Annex A: Draft text of the proposed convention adopted by the Committee on 9 July 1973. Convention relating to the distribution of programme-carrying signals transmitted by satellite. Articles 1-12. Annex B: Resolution adopted by the Committee on 9 July 1973. Annex C: Closing remarks by Mrs. Elisabeth Steup, Chairman of the Committee).

038 _____. *Commentary of the draft convention against the unauthorized distribution of programme-carrying signals transmitted by satellites,* prepared by the Secretariats of the United Nations Educational, Scientific and Cultural Organization and of the International Bureau of the World Intellectual Property Organization. Paris, Unesco; Geneva, WIPO, /1972/. 15 p. (processed).
Also published in Esp., Fr., Rus.

Document prepared by the 2nd Committee (Paris text) and presented to this Committee in accordance with a resolution recommending, among other things, that "the Secretariats of Unesco and WIPO prepare explanatory notes on the draft text of the Convention adopted by the Committee and if, in the course of preparing such notes, it appears to them that provisions in the text could be simplified and clarified, propose such simplifications and clarifications".

039 _____. *Comments received from governments.* Paris, Unesco; Geneva, WIPO, 1973. /25 p./. (UNESCO/WIPO/SAT.3/3 and Add. 1).
Also published in Esp., Fr., Rus.

Documents containing the replies (showing the source of the communication but omitting the customary formal openings and conclusions) received from the governments of the following States (in accordance with the resolution adopted by the Second Committee of Governmental Experts, Paris, May 1972) which were requested to make observations upon the draft text adopted by the Second Committee and the commentary on that draft text prepared by the Secretariat: Argentina, Belgium, Cyprus, Germany (Federal Republic of), Finland, France, Guatemala, Italy, Japan, Malta, Mexico, Nigeria, Poland, Sweden, Switzerland, United Kingdom, United States of America and Western Samoa.

040 COMMITTEE OF GOVERNMENTAL EXPERTS ON PROBLEMS IN THE FIELD OF COPYRIGHT AND OF THE PROTECTION OF PERFORMERS, PRODUCERS OF PHONOGRAMS AND BROADCASTING ORGANIZATIONS RAISED BY TRANSMISSION VIA SPACE SATELLITES (3rd), Nairobi, Kenya, July 1973. *Comments received from intergovernmental organizations and from international non-governmental organizations.* Paris, Unesco; Geneva, WIPO, 1973. 23 p. (UNESCO/WIPO/SAT.3/4).
Also published in Esp., Fr., Rus.

Document containing the replies (showing the source of the communication but omitting the customary formal openings and conclusions) received from the following organizations (in accordance with the resolution adopted by the Second Committee of Governmental Experts, Paris, May 1972) which were requested to make observations upon the draft text adopted by the Second Committee and the commentary on that draft text prepared by the Secretariat:

- United Nations (UN), International Labour Office (ILO), Food and Agriculture Organization of the United Nations (FAO), International Telecommunication Union (ITU) (intergovernmental organizations).

- European Broadcasting Union (EBU), International Alliance for Distribution by Wire (AID), International Confederation of Societies of Authors and Composers (CISAC), International Federation of Actors (FIA), International Federation of Musicians (FIM), International Federation of the Phonographic Industry (IFPI), Internationale Gesellschaft für Urheberrecht (INTERGU), International Literary and Artistic Association (ALAI) and International Writers' Guild (IWG) (international non-governmental organizations).

041 _____. *Draft Convention against the unauthorized distribution of programme-carrying signals transmitted by satellites* prepared by the United Nations Educational, Scientific and Cultural Organization and the World Intellectual Property Organization. Paris, Unesco; Geneva, WIPO, /1972/. 8 p. (processed).
Also published in Esp., Fr., Rus.

Document enumerating the ten articles which have been drafted following agreement by the Contracting States (Aware that the distribution of programme-carrying signals transmitted by satellites is rapidly developing both in volume and in geographical coverage, Noting that the lack of effective world-wide legal protection against the unauthorized distribution of such signals presents an increasing danger to the interests of authors, performers, producers of phonograms, and broadcasting organizations and other contributors to the programmes, Convinced that protection of programme-carrying signals against unauthorized distribution will benefit the said persons and organizations, Anxious not to impair in any way international agreements already in force and in particular in no way to prejudice wider acceptance of the Rome Convention of 26 October 1961, which affords protection to performers, producers of phonograms and broadcasting organizations).

042 _____. *Report presented by the Drafting Committee.* Paris, Unesco; Geneva, WIPO, 1973. /9 p./ (UNESCO/WIPO/SAT.3/18).
Also published in Esp., Fr.

Document containing the draft text of the proposed Convention presented by the Drafting Committee whose members are France, Germany (Fed. Republic of), India, Kenya, Spain, the United Kingdom and the United States of America, under the chairmanship of the Head of the Delegation of Kenya.

Final text appears under Entry No. 045

616

043 COMMITTEE OF GOVERNMENTAL EXPERTS ON PROBLEMS IN THE FIELD OF COPYRIGHT AND OF THE PROTECTION OF PERFORMERS, PRODUCERS OF PHONOGRAMS AND BROADCASTING ORGANIZATIONS RAISED BY TRANSMISSION VIA SPACE SATELLITES (3rd), Nairobi, Kenya, July 1973. *Resolution adopted by the Committee on 9 July 1973.* Paris, Unesco; Geneva, WIPO, 1973. 1 p. (UNESCO/WIPO/SAT.3/20).
Also published in Esp., Fr.

Text of the Resolution: (1) *Having examined,* in accordance with its mandate, the problems described in its title, (2) *Considers* that it has entirely fulfilled its mandate by drawing up a Draft Convention susceptible of general acceptance and (3) *Recommends* that a Diplomatic Conference for the purpose of concluding an international convention on this subject be convened in 1974.

See also under Entry No. 186

COMMONWEALTH PRESS UNION
See under Entry No. 134

044 CONTRERAS, Eduardo et al. "What we know in cross-cultural broadcasting: satellites". In: *Cross-cultural broadcasting* /Chapter/ Cultural effects. Paris, Unesco, 1976. pp. 14-16. (Reports and Papers on Mass Communications, No. 77).
Also published in Fr.

Part of the Chapter devoted to communication satellites and mentioning that there is an enormous amount of literature related to communications satellites. Usually the problems posed are technical considerations and cost considerations, with some emphasis on the legal aspects. The cultural implications, if noted at all, are not studied in detail. After referring to space specialists' opinions or studies the authors come to the conclusion that we must not speak of men (or nations) free from satellite technology, but of men (or nations) free in relation to it. This requires reality assessment and solutions. Critics have lingered in lamentations and, in some cases, very good theoretical speculations. Optimists have overlooked reality constraints and foresee marvels of technological dreams. Meanwhile, technical communications developments in the satellite realm and adjoining technologies advance, in gigantic steps, with their own logic.

045 *Convention relating to the distribution of programme-carrying signals transmitted by satellite.* Paris, Unesco; Geneva, WIPO, 1974. /6 p./.
Quadrilingual (Eng., Esp., Fr., Rus.).

The Contracting States, *Aware* that the use of satellites for the distribution of programme-carrying signals is rapidly growing both in volume and geographical coverage; *Concerned* that there is no world-wide system to prevent distributors from distributing programme-carrying signals transmitted by satellite which were not intended for those distributors, and that this lack is likely to hamper the use of satellite communications; *Recognizing,* in this respect, the importance of the interests of authors, performers, producers of phonograms and broadcasting organizations; *Convinced* that an international system should be established under which measures would be provided to prevent distributors from distributing programme-carrying signals transmitted by satellite which were not intended for those distributors; *Conscious* of the need not to impair in any way international agreements already in force, including the International Telecommunication Convention and the Radio Regulations annexed to that Convention, and in particular in no way to prejudice wider acceptance of the Rome Convention of 26 October 1961, which affords protection to performers, producers of phonograms and broadcasting organizations, Have agreed /12 ARTICLES/.

046 *Declaration of Guiding Principles on the Use of Satellite Broadcasting for the Free Flow of Information, the Spread of Education and Greater Cultural Exchange.* Paris, Unesco, 1974. 7 p.
Also published in Ar., Esp., Fr., Rus.

Issued also in: (a) *Unesco General Conference Document 17 C/98 (Annex)*
(b) *United Nations Document A/AC.105/109*
(c) *a Unesco 3-page leaflet*

Document containing the text of the above-mentioned Declaration prepared at different meetings (*inter alia* the Meeting of Experts on the Draft Declaration of Guiding Principles on the Use of Satellite Broadcasting for the Free Flow of Information, the Spread of Education and Greater Cultural Exchange - May 1972) and approved on the 15th day of November 1972 at the General Conference of the United Nations Educational, Scientific and Cultural Organization meeting in Paris, at its seventeenth session.

See also under Entries No. 101, 166, 168, 219, 228
(for draft declaration: see below)

DERIEUX, C.
See under Entry No. 249

047 *Desirability of modifying existing conventions or preparing a new international instrument on the protection of television signals transmitted by communication satellites.* Paris, Unesco, 1970. [7 p. incl. Annex]. (16 C/21).
Also published in Esp., Fr., Rus.

Progress report submitted, under the following headings, by the Director-General to the General Conference in order to decide whether to convene, during the biennium 1971-1972, an international conference to prepare and adopt an appropriate international convention on the protection of signals transmitted by satellites: I. Preliminary studies; II. Meeting of Governmental Experts on International Arrangements in the Space Communication Field; III. Intergovernmental Committee of the International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations (Rome Convention); IV. Intergovernmental Committees of the Copyright Conventions (Universal Convention and Berne Convention); V. Preparations for a Committee of Governmental Experts under joint Unesco/BIRPI auspices; VI. Decisions to be made by the General Conference. (Annex: Report of the programme and external relations commission of the Executive Board).

DICKINSON, Treeby J.
See under Entry No. 142

DIEUZEIDE, Henri
See under Entries No. 069, 132

DILL, R.
See under Entry No. 270

048 "Direct TV from satellites". In: *Unesco Chronicle* (Paris), Vol. XVII, No. 10, October 1971, p. 375.
Also published in Ar., Esp., Fr. $0.30; 10 p.; 1.20 F.

Mention of an article written by Dr. Eugène Pépin (President of the International Institute of Space Law and Professor at the "Institut des hautes études internationales" in Paris) in the publication *Impact of Science on Society* (Vol. XXII, No. 3) in which he explains why the prospect of having television programmes beamed directly by satellites into homes instead of using a ground reception station relaying them to conventional broadcasting stations, disturbs him.

049 *Draft declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange.* Item 13.3 of the Provisional Agenda. Paris, Unesco, 1972. /8 p. incl. Addendum/. (17 C/76 and Add.).
Also published in Esp., Fr., Rus.

Report (pursuant to 16 C/Resolution 4.132 "b") presented in two parts: Part I sets forth the background of the preparation of a draft declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange; Part II contains the text of the draft declaration submitted to the General Conference for adoption. The Addendum contains the replies to the requests for comment on the text of the draft declaration addressed to the Secretary-General of the United Nations and the Secretary-General of the International Telecommunication Union.

See also under Entries No. 012, 101-104, 117, 164, 165, 216, 218.

050 *Draft medium-term outline plan /5 years/.* Paris, Unesco, 1970-
(16 C/4- .C/4).
Also published in Esp., Fr., Rus.

Unesco's activities in the field of space communication are outlined, under the chapters "Contribution of space communication to the achievement of Unesco's aims" and "Research on and promotion of the international flow of information based on mutual respect for differing cultural values" in these documents which forms a link between the broad aims of Unesco, as set out in its Constitution and the detailed biennial programme presented in C/5.

EEK, H.
See under Entry No. 126

051 EGLY, Max. *Etude de la réception transnationale d'émissions de télévision éducative.* Paris, Agence de coopération culturelle et technique; Unesco, 1974. 85 p. incl. Annexes, Figures.
Only published in Fr.

Experiments on the dissemination of educational material produced for transmission by television, undertaken by Unesco in collaboration with the Agency of Cultural and Technical Co-operation, in Senegal, Gabon, People's Republic of Congo, Dahomey and Tunisia in 1972 in order to formulate standards to govern the production of visual materials to be used systematically on an international scale, as is possible through satellite communication. The study describes the objectives and operations and exposes the results obtained. It also formulates suggestions regarding the transnational dissemination and production of instructional software, as well as necessary conditions for similar types of experiments.

See also under Entry No. 246

052 ELLIOTT, Alan J.A. "Effects of space communication on cultural relations". In: *Unesco Handbook of International Exchanges,* Vol. II, Paris, Unesco, 1967. pp. 56-65.
Abstracts in Esp., Fr., Rus.

This article follows the sequence of the following list of topics: I. The cultural impact of communication satellites; II. Consequences of change; III. The governmental role; IV. National and international broadcasting; V. International communication; VI. Space communication and education; VII. Cultural co-operation between specialists; VIII. Effects on international travel; IX. The "élite" and the "masses". X. The problem of international ethics.

EUROPEAN BROADCASTING UNION (EBU)
See under Entries No. 033, 040, 074, 111, 142

053 EUROSPACE INFORMATION MEETING, Stockholm, September 1972. *Satellites for education and development in the African context.* Statement by E. Lloyd Sommerlad. Paris, Unesco, 1972. 10 p. (processed).

Report drawn freely from the following documents: I. A direct broadcast satellite for education and development in Africa; II. Educational strategies for building new societies; III. Space communications: increasing United Nations responsiveness to the problems of mankind. This report states that the crucial problems of education in relation to social development faced by the Third World have been conditioned by historical factors very different from those that Europe has known. It comes to the conclusion that the skilled use of mass media, of modern communication technologies, and of new methods and techniques in education may be the only way of solving Africa's educational and development problems in the present century and also that the educational problems directly affect the general level of economic productivity and social progress, and require priority attention and resources in finding adequate solutions. The continuation of studies to find ways of using communication technology, which will accord with Africa's needs and capacity is advised.

054 FEDOROV, E.K. "The decisive step in the conquest of cosmic space". In: *Impact of science on society* (Paris), Vol. XI, No. 3, 1961, pp. 154-158.
Also published in Esp., Fr., $0.50; 2/6-stg.; 1.25 F.

New discoveries, such as that of the radiation belts around the earth, which have radically changed our understanding of near space and of the danger of radiation during space flights, have resulted from space research. We can expect to see space probes solving a number of practical problems. The article describes the first Soviet satellites in space and also a number of problems which must be solved before a man can be sent up into space.

FELDSTEIN, Valter
See under Entry No. 124

055 FEOKTISTOV, Konstantin. "Why we are outward bound". In: *The Unesco Courier* (Paris), May 1966, pp. 27-30.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/6-stg.; 30 cents; 1 F.

The author sets down some ideas on space travel derived from his own personal experience. At 40, he has not lost hope of landing on the moon. The sketchy programme of space exploration given in the article gives some idea of the colossal effort man must make and the expenditure that will be necessary to put into effect. Steps have already been made along the road to international co-operation with the U.S. satellite Echo 2. Some of the achievements of space engineering have already made their mark in economic and cultural life.

FERNAY, Roger
See under Entry No. 029

056 FESENKOV, V.G. "What shall we gain by the conquest of space?" In: *The Unesco Courier* (Paris), April 1960, pp. 23-25.
Also published in Esp., Fr., Rus. 1/-stg.; 30 cents; 0.70 F.

Rocket flights have already helped to solve a host of scientific problems and are now throwing light on a number of questions still awaiting solution. Their greatest importance lies in the magnificent prospects they

open up for the future. The launching of space rockets opens up a new era in the history of man's conquest of outer space. The answers, obtained by a rocket observatory, will enable us to check up on our conceptions of the nature of interplanetary space and give them greater precisions and, at the same time, to draw new conclusions on the processes that are going on within our solar system.

FOOD AND AGRICULTURE ORGANIZATION (FAO)
See under Entry No. 040

FORREST, J.
See under Entries No. 109, 115

FRANCIS-WILLIAMS, Lord
See under Entry No. 136

057 FRIEDMAN, Bruno. "Lasers, 100 million messages on a beam of light". In: *The Unesco Courier* (Paris), February 1964, pp. 15-19.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/-stg.; 30 cents; 0.70 F.

Lasers open the way to major developments in communications. A single laser-produced light beam has inherently the ability to carry all the information transmitted by all the television stations, radio stations, teletypewriters, and telephone lines in the world, operating at the same time. Light for communications will come just in time. The entire radio spectrum is already vastly crowded. Moreover, the demand for additional communications channels will multiply many times during the next decades.

058 _____. "Lunar international Laboratory". In: *The Unesco Courier* (Paris), May 1966, pp. 31-34.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/6-stg.; 30 cents; 1 F.

Description of activities of the Lunar International Laboratory Committee which came into being in 1960 when the concept of a lunar international laboratory was put forward by Dr. Malina. From studies undertaken will be evolved a sound scientific programme for a laboratory, when the time is ripe for it. When? The Committee foresees that this will be sometime in the period 1975-1985. What is learned about the moon may help answer many questions about our earth.

059 FRUTKIN, Arnold W. "Joint enterprises are now a going concern in the exciting field of space research". In: *The Unesco Courier* (Paris), May 1966, pp. 13-16.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/6-stg.; 30 cents; 1 F.

International co-operation in the scientific exploration of space provides both a present reality which is yielding practical benefits and a highly attractive prospect for future contributions to the knowledge and welfare of all nations. The National Aeronautics and Space Administration (NASA), has carried out a broad and varied programme of co-operative space activities involving 70 countries and jurisdictions.

060 GAGARIN, Yuri and SCHIRRA, Walter M.S. "The heart of the matter". In: *The Unesco Courier* (Paris), May 1966, p. 4.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/6-stg.; 30 cents; 1 F.

Statements addressed to the Unesco Courier by the two famous astronauts on the occasion of the international co-operation in space research and exploration. In 1961, Yuri Gagarin whirled into orbit around the earth and became the first man in space. In 1962, Walter Schirra accomplished a solo space-flight and in 1965 he was one of four astronauts who made the first manned rendezvous in space.

061 GERMAN FOUNDATION FOR DEVELOPING COUNTRIES CONFERENCE, Munich, October 1972. *The use of satellites for educational television in developing countries* by E. Lloyd Sommerlad. Paris, Unesco, 1972. 11 p. (processed).

Issued also in: *The use of satellites for educational television in developing countries. Report on the Munich Conference 1972.* pp. 42-50.

Paper on the potentialities of broadcasting satellites to contribute to education and development, and outlining Unesco's activities in this field: Studies, research and documentation on the uses of space communication for information, education and development, and its social and cultural impact, which promote international co-operation and the development of appropriate international arrangements in the space communication field - Unesco provides assistance to Member States in studying the possible applications of satellite broadcasting for their particular needs. The paper comes to the conclusion that satellites are certainly a part of the new technology which may be used to meet the educational challenge. If they do nothing else in the short term, they are at least a catalyst which has stimulated a rethinking of a whole array of problems related to the relevance of traditional education, educational curricula and methods, and the role of the mass media in education and development.

062 GJESDAL, Tor. "Unesco's programme in space communication". In: *Unesco Chronicle* (Paris), Vol. XVI, No. 11, November 1970, pp. 439-452.
Also published in Ar., Esp., Fr. $0.30; 2/-stg.; 1 F.

Also issued as an offprint.

Article dealing with the past and future aspects of Unesco's programme in space communication namely: I. The communication revolution; II. A programme is launched; III. The crucial problem of frequencies; IV. Joint action by the United Nations family; V. The 1965 Conference, a turning point; VI. A pilot project is proposed; VII. The long-term programme; VIII. The advisory panel; IX. Exploration missions; X. A new concept gains new dimensions; XI. Co-operation with broadcasting unions; XII. The United Nations and direct broadcasting; XIII. Unesco meeting of governmental experts; XIV. Perspectives for the future.

See also under Entries No. 106, 160, 179, 225, 227, 236

GOODELL, Rae
See under Entry No. 210

063 GREGORY, Gene. "Spin-off; the fruit of space research". In: *The Unesco Courier* (Paris), March 1970, pp. 4-31.
Also published in Ar., Dt., Esp., Fr., Heb., Hind., It., Jap., Per., Rus., Tam. 2/-stg.; 40 cents; 1.20 F.

Results of an inquiry into the fruits of space research, undertaken by the author for the Unesco Courier and published under the following subtitles: I. Is the space effort a waste of money?; II. Spin-off from space satellites; III. The new space-age technology; IV. Benefits to medicine; V. New space-age materials; VI. New space-age power sources; VII. Space-age electronics and pocket computers; VIII. The "systems approach", applying the space team method to major problems on earth.

064 GUSEV, Alexander. "Rays from outer space". In: *The Unesco Courier* (Paris), November 1961, pp. 22-24.
Also published in Ar., Dt., Esp., Fr., Jap., Rus. 1/-stg.; 30 cents; 0.70 F.

The era of space rockets and artificial satellites marked a new stage in the study of cosmic rays. Physicists had been able to send their instruments into outer space. Radiation belts could be discovered thanks to Soviet and American observations carried out by artificial satellites.

HEDEN, C.G.
See under Entry No. 232

HOLT, H.R.
See under Entry No. 258

HORLEY, A.
See under Entry No. 125

065 HORLEY, A. and SANFRIDSSON, A. "Satellite communication system". In: *Indonesia - Communication policies and planning.* Chapter 5. Some suggested projects. Paris, Unesco, 1973. pp. 21-22. (2888/RMO.RD/FDC).

This chapter points out that a satellite communication system in Indonesia offers many advantages. A feasibility study on the possibility of establishing a satellite broadcasting system (radio and television, but eventually also tele-facsimile of newspapers, partly or complete) in Indonesia is recommended by the mission.

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
See under Entry No. 235

INTERNATIONAL ALLIANCE FOR DISTRIBUTION BY WIRE (AID)
See under Entry No. 040

066 INTERNATIONAL ASTRONAUTICAL CONGRESS (XIVth), Education Day, Paris. 25 September 1963. *The use of communication satellites for information and education* by Julian Behrstock. Paris, Unesco, 1963. 9 p. (processed).

Address which couples two of the most striking features of our time - on the one hand, the rapid spread of mass communication and, on the other, the advent of the space age. The speaker comes to the conclusion that the most useful role which Unesco can perform for the time being is that of stimulating action in its Member States. Unesco's hope is that through the preparation of reports and studies and by the assembling of expert opinion it can, in a modest way, help to encourage the development and use of space communication for constructive purposes. The Organization will pursue that aim by means such as those adopted in holding this symposium.

067 INTERNATIONAL COLLOQUIUM ON EDUCATIONAL SATELLITES AND INTERNATIONAL CO-OPERATION, Nice, May 1971. *Education and satellites - Third World possibilities* by H.D. Perraton. Paris, French National Commission for Unesco, 1971. 46 p. incl. Appendices and References.
Also published in Fr.

Report based on the discussions at the international meeting of experts organized with the assistance of Unesco during the Colloquium. It makes specific recommendations on the following: I. Finance and access (further inquiries should be carried out into the economics of satellite use for education); II. Constraints on satellite use (studies on the implications of copyright law for international satellite use should continue); III. Strategies for innovation (ways of developing the international use of teaching material); IV. Long-distance seminars (a three-stage experiment should be set up to link universities by satellite for joint seminars); V. Simulation (partly to test public and educational opinion and partly to compare the reactions of differing groups of students to the same visual material); VI. International co-production (teaching materials for international use); VII. Information (Unesco should continue to act as a clearing house for information on educational satellite proposals); VIII. Further research (on pedagogical questions involved in satellite use). (Appendix A: List of participants. Appendix B: The use of satellites).

068 _____. "Regional system of education for Latin America - Considerations of the use of ETV and similar devices - Educational coverage of the system by Jacques Torfs. In: *Les satellites d'éducation - Educational satellites.* Paris, Centre national d'études spatiales, 1971. pp. 151-191, incl. Tables of SERLA model.
Bilingual (Eng., Fr.).

Unesco statement, concluding that the adoption of a Regional Satellite System should be considered as much more than one of many means which may be used to bring about some minor and slow improvements to educational standards. It is intended to foster a revolutionary change, to produce a jump ahead which should enable all countries in the region to bridge the gap which is constantly widening between South American educational and cultural levels, and those of the countries of the North Atlantic communities. The system that is proposed is huge, complex and, in absolute terms, costly. Sweeping educational reforms must be made to assure its successful operation. While a period of 20 years is allowed to effect its full deployment, it is quite obvious that this period is short in terms of the efforts involved and the human resources to be mobilized. For these reasons the system, and the reforms it implies, can only be carried out if the need for a radical change is fully recognized, and the implications accepted.

069 _____. "Space communication for education in the Unesco's programme" by Henri Dieuzeide. In: *Les satellites d'éducation - Educational satellites.* Paris, Centre national d'études spatiales, 1971. pp. 377-383.
Bilingual (Eng., Fr.).

Unesco statement which can be summarized as follows: I. Crisis of educational expansion and the search for solutions which are both qualitative and quantitative; II. Unesco studies for problem-solving and concrete action programmes since 1967: feasibility missions, development of international co-operation, operational activities, frequency and copyrights for education; III. Aid to Member States wishing to develop: simulation of transcultural employment, research on pedagogical communities, various forms of experimentation in educational telecommunications (tele-conference, electronic table), development of systems analysis for an overall view of education; IV. The International Commission for Strategies of Education and the mobilization of national efforts.

070 INTERNATIONAL COLLOQUIUM ON EDUCATIONAL SATELLITES AND INTERNATIONAL CO-OPERATION. Nice, May 1971. "The use of space communication for education and development - Evolution and prospects" by E. Lloyd Sommerlad. In: *Les satellites d'éducation - Educational satellites.* Paris, Centre national d'études spatiales, 1971. pp. 37-43.

Bilingual (Eng., Fr.).

An introductory Unesco paper summarizing the growth of interest in the possibilities of using space communication for education, science and culture. It deals with the role of satellites in aiding education and development, the need for international co-operation and outlines some possible educational applications of satellite technology.

INTERNATIONAL CONFEDERATION OF SOCIETIES OF AUTHORS AND COMPOSERS (CISAC)

See under Entry No. 040

071 INTERNATIONAL CONFERENCE ON SPACE AND COMMUNICATION, Paris, March 1971. *Some social perspectives of satellites communication,* address by Henry R. Cassirer. Paris, Unesco, 1971. 11 p. (processed). (MC/723/2503).

Issued also in: *L'espace et la communication.* Tome I. Paris, Chiron, 1971. pp. 28-38.

According to the speaker we are, as scientists, looking ahead into the future of space communication with a degree of confidence but looking ahead at the social perspectives of space communication, we are unable to assume such a degree of certainty. For the same technological achievement may serve entirely opposed ends. Space communication will have evident social implications, irrespective of its content, but its meaning to society depends nevertheless very much upon the structure and uses of this new resource. The statement is presented under the following headings: I. The meaning of space depends on man's choices; II. Radio, television and Unesco's field of competence; III. The impact of electronic communication; IV. The future of broadcasting.

072 INTERNATIONAL CONFERENCE OF STATES ON THE DISTRIBUTION OF PROGRAMME-CARRYING SIGNALS TRANSMITTED BY SATELLITES, Brussels, May 1974. *Report of the General Rapporteur,* Paris, Unesco; Geneva, WIPO, 1974. 41 p. incl. Articles and Annexes (UNESCO/WIPO/CONF.SAT/42). Also published in Esp., Fr., Rus.

Conference convened jointly by the United Nations Educational, Scientific and Cultural Organization and the World Intellectual Property Organization. An analysis of the accomplishments of the Conference, including the Convention adopted by the delegates and a synthesis of the interpretations given to particular provisions of the Convention. For the sake of clarity and simplicity, this Report is divided by subject-matter, without indicating the chronology of the debates or differentiating between discussions during the plenary sessions and those in the main Commission. The verbatim record of the Conference contains a complete chronological transcript of the work of the plenary sessions and of the main Commission. (Articles I-XII. Annex A: List of participants, officers and Secretariat of the Conference. Annex B: Letter relating to document UNESCO/WIPO/CONF.SAT/23 adopted by the Conference. Annex C: Resolution presented by the delegation of France and adopted by the Conference.)

073 _____. *Address* by René Maheu. Paris, Unesco, 1974. 4 p. (DG/74/4). Also published in Fr.

Address given at the opening of the Conference, stressing the responsibility of the Conference to draw up such rules that ensure that the unprecedented possibilities of dissemination offered by communication satellites will be used for the good of mankind as a whole.

074 **INTERNATIONAL CONFERENCE OF STATES ON THE DISTRIBUTION OF PROGRAMME-CARRYING SIGNALS TRANSMITTED BY SATELLITE,** Brussels, May 1974. *Comments received from intergovernmental and international non-governmental organizations,* Paris, Unesco; Geneva, WIPO, 1974. 18 p. (UNESCO/WIPO/CONF.SAT/5).
Also published in Esp., Fr., Rus.

Inter alia the following comments have been received by the European Broadcasting Union (international non-governmental organization): I. The EBU fully accepts the transformation which the draft convention has undergone as a result of the proposal of Morocco, Brazil, India and Mexico (UNESCO/WIPO/SAT.3/10) and considers that these four countries have opened the path which must be followed to the end in order to reach the desired goal; II. Suggestions are given concerning Articles 1, 2, 3, 4, 7, 8, 11; III. EBU's views expressed concerning the three proposals made at the third Committee of Experts; IV. EBU's belief that the method of guaranteeing a successful outcome for the Diplomatic Conference is to uphold the new philosophy; implications it has for the entire text of the future treaty.

075 _____. *Convention relating to the distribution of programme-carrying signals transmitted by satellite.* Paris, Unesco; Geneva, WIPO, 1974. 25 p. Quadrilingual (Eng., Esp., Fr., Rus.)

Issued also in: *Copyright Bulletin* (Paris). Quarterly Review, Vol. VIII, No. 2/3, 1974, pp. 10-14. Eng., Esp., Fr.

Reproduction of text appearing under 045 plus a list of States which have signed the Convention relating to the distribution of programme-carrying signals transmitted by satellite on 21 May 1974.

076 _____. *Final Act of the International Conference of States on the distribution of programme-carrying signals transmitted by satellite.* Paris, Unesco; Geneva, WIPO, 1974. 5 p. Quadrilingual (Eng., Esp., Fr., Rus.)

Issued also in: *Copyright Bulletin* (Paris). Quarterly Review, Vol. VIII, No. 2/3, 1974, pp. 14-15. Eng., Esp., Fr.

Recapitulation of the following points: I. Organizers, place and principal bodies established by the Conference; II. Discussions on the basis of the Draft Convention drawn up by the Committee of Governmental Experts (Nairobi, July 1973); III. Establishment by the Conference of the text of the Convention as well as of a report on its work drafted by its General Rapporteur; IV. Text of the Convention to be established also in Arabic, Dutch, German, Italian and Portuguese; V. Place and date of the Final Act which original is to be deposited in the archives of the United Nations; VI. List of States which have signed the Final Act of the International Conference of States on the distribution of programme-carrying signals transmitted by satellite on 21 May 1974.

077 _____. *Note by the Secretariats of Unesco and WIPO,* Paris, Unesco; Geneva, WIPO, 1974. /34 p./. (UNESCO/WIPO/CONF.SAT/3).
Also published in Esp., Fr., Rus.

Report (UNESCO/WIPO/SAT.3/23) adopted by the Third Committee of Governmental Experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites (convened jointly by the United Nations Educational, Scientific and Cultural Organization (Unesco) and the World Intellectual Property Organization (WIPO), at Nairobi, from 2 to 11 July 1973) attached as an annex to the present document.

078 INTERNATIONAL CONFERENCE OF STATES ON THE DISTRIBUTION OF PROGRAMME-CARRYING SIGNALS TRANSMITTED BY SATELLITE, Brussels, May 1974. *Records of the International Conference of States on the distribution of programme-carrying signals transmitted by satellite*, Brussels (Belgium), May 1974. Paris, Unesco; Geneva, WIPO, 1978. /678 p./. Also published in Esp., Fr., Rus.

Publication presented under the following headings: I. Convention relating to the distribution of programme-carrying signals transmitted by satellite; II. Final Act of the International Conference of States on the distribution of programme-carrying signals transmitted by satellite; III. Signatories; IV. List of participants, officers and Secretariat of the Conference; V. Report of the General Rapporteur; VI. Verbatim records of the proceedings of the Conference (Opening session, plenary meetings, meetings of the main commission); VII. Working documents (list of documents, text of documents); VIII. Indexes (States, organizations and personalities, articles of the Convention, working documents, subject index).

079 _____. *Statement* by E. Lloyd Sommerlad. Paris, Unesco, 1974. 4 p. (processed).

Speech in which the author addresses himself to the question of the relationship between the problem of the protection of satellite broadcasts from piracy and the problems associated with direct satellite broadcasts over frontiers. Details are given on the meeting of governmental experts on international arrangements in the space communication field held in 1969 and on the declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange. There are a number of parallel activities which have taken place, and are continuing to take place within different organs of the United Nations on various aspects of satellite broadcasting. The difference between the issues is clarified and the essential distinction explained between the matters covered by the draft convention discussed during the meeting and the broader issues of direct satellite broadcasting over frontiers.

INTERNATIONAL COPYRIGHT SOCIETY (INTERGU)
See under Entries No. 033, 040

INTERNATIONAL FEDERATION OF ACTORS (FIA)
See under Entries No. 033, 040

INTERNATIONAL FEDERATION OF MUSICIANS (FIM)
See under Entries No. 033, 040

INTERNATIONAL FEDERATION OF NEWSPAPER PUBLISHERS
See under Entry No. 134

INTERNATIONAL FEDERATION OF THE PHONOGRAPHIC INDUSTRY (IFPI)
See under Entries No. 033, 040

INTERNATIONAL FEDERATION OF TRANSLATORS (FIT)
See under Entry No. 033

INTERNATIONAL FILM AND TELEVISION COUNCIL
See under Entry No. 153

INTERNATIONAL LABOUR OFFICE (ILO)
See under Entries No. 033, 040

INTERNATIONAL LITERACY AND ARTISTIC ASSOCIATION (ALAI)
See under Entries No. 033, 040

INTERNATIONAL PRESS TELECOMMUNICATIONS COMMITTEE
See under Entry No. 134

INTERNATIONAL TELECOMMUNICATION UNION (ITU)
See under Entries No. 023, 040, 151

080 INTERNATIONAL TELECOMMUNICATION UNION EXTRAORDINARY ADMINISTRATIVE RADIO CONFERENCE ON SPACE COMMUNICATIONS, Geneva, October 1963. *Space communication and the mass media;* Paris, Unesco, 1963. 24 p. (Reports and papers on mass communication, No. 41).
Also published in Fr. 50 cents; 2/6-stg.; 1.75 F.

Unesco report on the occasion of the Conference drawing attention from the point of view of the mass media to the long-term implications of the allocation of frequencies for space communication services. It seeks to define the features of space communication within the pattern of communication as a whole. It deals with technical problems affecting the development and operation of space communication services and, with the possible use of space communication to promote the flow of information, the spread of education and cultural exchange.

081 _____. *Space communication in the promotion of Unesco's aims. Annex.* Paris, Unesco, 1963. 23 p. (CL/1673 Annex).
Also published in Esp., Fr., Rus.

In the preparation of this report (for consideration by Member States and Associate Members of Unesco) there was wide consultation with the mass media professions and authorities in the telecommunication field. In addition, all interested international non-governmental organizations having consultative status with Unesco were invited to submit their comments and suggestions. The report contains three chapters. The first seeks to define the features of space communication within the pattern of communication as a whole; the second deals with technical problems affecting the development and operation of space communication services; and the third, with the application of space communication through the mass media to promote the flow of information, the spread of education and cultural exchange. The three chapters are followed by a number of conclusions and suggestions emerging from the report.

082 INTERNATIONAL TELECOMMUNICATION UNION FREQUENCY PLANNING CONFERENCES. *Aide-mémoire on frequencies for broadcast satellites.* The need for assessment of long-range television requirements, in advance of the ITU Planning Conferences for the Broadcasting Satellite Service. Paris, Unesco, 1973. 3 p. (Annex to letter No. COM/FDC/RPC.49/12).
Also published in Esp., Fr.

The purpose of this Aide-mémoire, prepared with the assistance of the International Telecommunication Union, is to bring to the attention of organizations which are concerned with the use of broadcasting facilities the importance of Member States taking early action to determine future television requirements in the light of the Planning Conferences which the International Telecommunication Union will convene for the allotment of broadcast satellite frequencies to individual countries. The background to the problem, its particular significance to information and education authorities, and the possibilities of assistance from Unesco and ITU are set out in this document.

083 INTERNATIONAL TELECOMMUNICATION UNION PLENIPOTENTIARY CONFERENCE, Malaga-Torremolinos (Spain) 1973. *UNESCO/ITU co-operation in communication planning.* Geneva, ITU, 1973. 3 p. (Document No. 82). Also published in Esp., Fr.

Paper presented by the United Nations Educational, Scientific and Cultural Organization referring to the close co-operation with the ITU in areas of common interest and foreseeing the need for continued collaboration in the growing programme of integrated communication planning, undertaken at the request of Member States. This co-operation has applied particularly in the planning of operational systems of radio and television (for example in India, Indonesia and Iran); the training of technical personnel for the electronic media (for example in regional activities in Asia); and in the field of space communication where Unesco has undertaken a number of studies and field missions with the participation of ITU, to assess the potentialities of satellite systems to contribute to education and national development, notably in India, Brazil, Pakistan, South America, Africa and the Arab States. Reference is made on: (a) an aide-mémoire, prepared with the assistance of the ITU, on the significance of the decision for broadcasters and the need for preparations for the planning conferences; (b) desire to have an ITU expert associated with field missions; (c) ways to be found within the ITU Secretariat of funding the participation of ITU experts in joint missions to advise on comprehensive communication planning.

084 INTERNATIONAL TELECOMMUNICATION UNION SYMPOSIUM ON "EDUCATION AND TELECOMMUNICATIONS" at TELECOM 71, Geneva, June 1971. *Educational uses of space communication.* A paper presented by E. Lloyd Sommerlad. Paris, Unesco, 1971. 6 p. (processed).

Reference is made to the interest in the possibilities of space communication for human progress stemming from the predictions made by Arthur Clarke, the British science writer, as far back as 1946. Also the paper mentions that even before the first communication satellite, Telstar, was placed in orbit in 1962, Unesco was beginning to look at the possibilities and plan for the exploitation of artificial satellites to disseminate information and educational programmes over vast areas. Then the paper deals with the role of satellites for education and development and with some possible educational applications such as links between universities for guest lecturers, forums and exchange of research information (using point-to-point telecommunication satellites) and open universities providing television courses, possibly with telex, or feedback techniques (using distribution or broadcasting satellites) etc.

085 INTERNATIONAL TELECOMMUNICATION UNION SYMPOSIUM ON SPACE AND RADIO COMMUNICATIONS (2nd) Le Bourget, June 1971. *The use of space communication for information, education, culture and development* by E. Lloyd Sommerlad. Paris, Unesco, 1971. 10 p. (COM/FF/1514/23/6/71). Also published in Fr.

The author gives a sense of perspective with a glimpse of the future and defines very briefly how Unesco envisages the importance of space communication in three main fields: The free flow of information, the spread of education and cultural and scientific exchange. For Unesco space broadcasting could be an answer to some of the world's most intractable problems, such as: the widening development gap between nations - the isolation of rural areas - the appalling rate of world illiteracy - and the great shortage of schools and qualified teachers.

086 INTERNATIONAL TELECOMMUNICATION UNION SYMPOSIUM ON SPACE AND RADIO COMMUNICATIONS (3rd), Le Bourget, May-June 1973. *Satellite broadcasting in the context of communication planning* by E. Lloyd Sommerlad. Paris, Unesco, 1973. 11 p. (processed).
Also published in Fr.

Issued also in: *ITU 3rd Symposium on space and radio communication.* 30th International Air and Space Show (Geneva), Booklet No. 14, 1973. pp. 24-30. Eng., Esp., Fr.

Paper stating that technology and utilization should go hand in hand, and national policies should aim at full exploitation of technology in a socially acceptable way. The dilemma faced by many countries today is that the communication revolution has found them unprepared politically, legally, organizationally and economically for the application of technical possibilities. Hence, the growing emphasis on research, policy formulation and strategic operational planning in the whole field of communication. Two ways of approaching the use of communication satellites to help attain national goals are examined. Mention is made of the need to assess the future requirements for satellite broadcasting frequencies, in the light of the planned development of television services generally.

087 INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE, Geneva, June 1971. *Aide-mémoire on frequency allocations for space communication;* the significance for Unesco's aims of the ITU Conference. Paris, Unesco, 1970. 6 p.
Also published in Esp., Fr.

Prepared with the assistance of the International Telecommunication Union. The purpose of this Aide-mémoire is to assist Member States in preparing for the 1971 Conference and to suggest some steps which they may consider taking to ensure that the needs of education, science, culture and information are given appropriate attention when space frequency requirements are being assessed. As background to a study of this problem explanations of principles of spectrum regulation and the purpose of the World Administrative Radio Conference are provided.

088 _____. *Frequency allocation for space communication.* A paper submitted by the Secretariat of the United Nations Educational, Scientific and Cultural Organization. Paris, Unesco, 1971. 7 p. (FF/1299/27/5/71).
Also published in Esp., Fr.

Issued also in: *ITU document.* (113-E; 113-F; 113-S).

Paper presented to the Conference explaining Unesco's interest in satellite broadcasting and concern that the Conference, in its assessment of long-term needs, should make adequate provision for the likely future space frequency requirements for educational purposes. Suggestions are also made that when consideration is given to the appropriate allocation of frequency bands for the broadcasting-satellite service, the special problems of developing countries should be borne in mind since for many of those space communication may provide the only option, for decades to come, of reaching the millions of rural and isolated people, whose need is greatest, with a most powerful tool for development.

089 INTERNATIONAL TELECOMMUNICATION UNION WORLD ADMINISTRATIVE RADIO CONFERENCE, Geneva, June 1971. *Statement by Mr. Lloyd Sommerlad, representative of the Director-General of Unesco.* Paris, Unesco, 1971. 5 p. (CC/FF/1514/23/6/71).
Also published in Esp., Fr.

Issued also in: *Minutes of the Second Plenary Meeting.* Geneva, ITU, 1971. pp. 9-12 (175-E; 175-F; 175-S).

Statement summing up the paper "Frequency allocation for space communication" (FF/1299/27/5/71 and ITU document "113-E; 113-F; 113-S") submitted by the Unesco Secretariat to the Conference.

INTERNATIONAL WRITERS' GUILD (IWG)
See under Entries No. 033, 040

090 *Invitations to the Committee of Governmental Experts on Problems in the Field of Copyright and the Protection of Performers, Producers of Phonograms and Broadcasting Organizations Raised by Transmission Via Space Satellites.* Item 4.4.1 of the Provisional Agenda. Paris, Unesco, 1970. 8 p. (84 EX/9).
Also published in Esp., Fr., Rus.

Document dealing with proposals submitted by the Director-General to the Executive Board (pursuant to Article 21 of the Regulations for the general classification of the various categories of meetings convened by Unesco) and concerning invitations to the Committee of Governmental Experts on Problems in the Field of Copyright and the Protection of Performers, Producers of Phonograms and Broadcasting Organizations Raised by Transmission Via Space Satellites /to be held in Lausanne in 1971/.

091 *Invitations to the Meeting of Governmental Experts on International Arrangements in the Space Communication Field.* Item 4.5.1 of the Provisional Agenda. Paris, Unesco, 1969. 4 p. (82 EX/13).
Also published in Esp., Fr., Rus.

Document in which the Director-General suggests that if the Executive Board approves the proposals contained in it the following resolution could be adopted: "The Executive Board, 1. *Having considered* the proposals of the Director-General for invitations to the Meeting of Governmental Experts on International Arrangements in the Space Communication Field, to be held at Unesco House, from 2 to 9 December 1969, 2. *Decides* (i) that invitations to participants in the meeting shall be extended to all Member States and Associate Members of Unesco referred to in this document; (ii) that invitations to send Observers to the meeting be extended to the States which are not members of Unesco, listed in this document; (iii) that invitations to send Observers to the meeting be extended to the organizations listed".

JAFFE, L.
See under Entry No. 141

JANKY, James M.
See under Entry No. 210

KANU, Okoro P.
See under Entry No. 250

KARNIK, Kiran
See under Entry No. 017

092 KENT, Brian et al. "Satellite Communication" - "Impact of communication satellites on the educational broadcasting system to be designed for Indonesia" - "Economics of communication satellite introduction into the proposed educational broadcasting system of Indonesia". In: *Educational Broadcasting in Indonesia - Unesco Educational Broadcasting Mission July-August 1970.* Paris, Unesco, 1970. Chapters 2.8.5; 3.15; 3.16.(MC/3200/2408).

2.8.5: Such a system should only be considered where it is most economical and effective, that is to reach the isolated islands, the sparsely populated areas, the normally inaccessible places. When the total of the nation's population needs to be educated, informed or in communication, a satellite system may be the only answer: if only the city centres, the concentrated population areas need to be reached then other means of telecommunication are usually less costly.
3.15: The Mission recommends that an extensive study be made of the impact of the use of communication satellites on the proposed educational broadcasting system for Indonesia.
3.16: The Mission recommends that further to the study on the impact of communication satellite on the proposed system, there be a practical study to be made about economics of its introduction. What are the costs involved, what are the benefits, and what are the possibilities of financing the system?

KHATIB, M.M.
See under Entry No. 119

093 KONDRATYEV, Kirill Ya. "Observations from space in a global ecology programme". In: *Impact of Science on Society* (Paris), Vol. XXIV, No. 3, 1974. pp. 203-211.
Also published in Esp., Fr. $3; £1; 8.50 F.

In order to resolve problems arising from the possibility of ecological crisis, we need more and better information about our environment. The condition of nature on a planetary scale can be monitored efficiently only with the aid of satellites. The contributions, too, of human observers in earth orbit are no less vital to a coherent scheme of "space ecology" than the automated acquisition of data, by fast computer, concerning resources and hazards on land and in the sea. (Fig. 1: The "Meteor" meteorological system. Table 1: Possibilities of interpreting multispectral images).

KREIMER, Osvaldo
See under Entry No. 210

KULEBIAKIN, Viatcheslav N.
See under Entry No. 252

LASODE, I.O.A.
See under Entry No. 131

094 LEFRANC, Robert. *L'emploi des communications spatiales à des fins éducatives.* Paris, Unesco, 1971. 95 p. incl. Table (processed).

Analysis based on existing documentation of the educational potential of satellites (specific value - supplementary advantages - limitations). Different types of educational action for the developing countries and the developed countries are presented as well as a detailed outline of the organization and research required to initiate a satellite educational system. The necessity for international co-operation is underlined.

095 **LEONOV, Aleksei.** "My first steps in space". In: *The Unesco Courier* (Paris), June 1965. pp. 4-11.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/6-stg.; 30 cents; 1 F.

Article written for the readers of the Unesco Courier in which is recounted the thrill experienced by the author as he emerged from the capsule, hurtling around the earth at more than 28,000 kilometres an hour and what he saw during his extraordinary adventure. Photographs were reproduced from the colour film taken together with his colleague aboard Voskhod II, P. Belyayev.

096 **LEWIS, Sulwyn.** "The promise of satellite communication". In: *Principles of cultural co-operation* - Chapter II - Unesco and cultural co-operation. Paris, Unesco, 1971. pp. 18-19. (Reports and Papers on Mass Communication, No. 61).
Also published in Fr.

A large number of technological and scientific by-products of American and Soviet excursions are available for man's use and enumerated here in detail.

097 **LINDSAY, Robert and NIXON, Raymond B.** "Two decades in the world of the mass media". In: *The Unesco Courier* (Paris), July-August 1966. pp. 37-39.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 3/-stg.; 60 cents; 2 F.

Soaring over all other instruments of mass information conveyance, there is the communication satellite - far and away the most significant technical accomplishment and historical milestone of the past 20 years. The communication satellite has demonstrated that there are no physical limitations to the spatial dimensions of mass communication. Unesco has begun to examine how space communication can be put to use in its continuing programme for the use of the mass media for education and for literacy campaigns.

LINVILL, William K.
See under Entry No. 125

098 *Long-term programme for the use of space communication:* proposals by the Director-General. Paris, Unesco, 1966, [8 p. incl. Annexes]. (Unesco 14 C/25).
Also published in Esp., Fr., Rus.

Document adopted by the General Conference at its fourteenth session in which it was proposed that Unesco should seek to ensure that the full potential of this new development be realized for education, scientific, cultural and information purposes, and to this end should encourage the conclusion of the international agreements required, assist in planning the effective use of satellites for education and development programmes, and study the feasibility of a pilot project designed to test and demonstrate this use. (Annex I: Principal types of communication satellites. Annex II: Abstract of a feasibility study of a pilot project using a communication satellite primarily for educational television).

LUSIGNAN, Bruce B.
See under Entry No. 257

MAHEU, René
See under Entries No. 031, 073, 146

099 "Mankind and outer space". In: *Impact of Science on Society* (Paris), Vol. XI, No. 3, 1961, pp. 151-153.
Also published in Esp., Fr. $0.50; 2/6-stg.; 1.25 F.

Outlines first manned flight in orbit round the world made by the Soviet astronaut Yuri Alexievitch Gagarin and the ballistic flight into space made by Alan Bartlett Shepard. It also recalls Unesco activities in the field of space research.

MANUALI, B.
See under Entry No. 247

100 MARTELANC, Tomo. *Social and cultural impact of satellite-based television.* Paris, Unesco, 1974. 21 p. incl. References. (COM.7/WS/5).

This paper is a contribution to the continuing study on the future of communication in the cause of peace. It comes to the conclusion that new technology requires new ways of handling it, and that the task in the case of space communication will be a tremendous one calling for co-ordinated, conscious, organized universal action. The sooner we become aware of this the better we shall be able to respond to the challenging future. There are many risks and perils to be avoided in the course of action. We face a dilemma and we must opt either for a genuine global television or a highly centralized "univision". The dilemma is there, but we can still make our choice.

MASON, B.D.
See under Entry No. 155

101 MEETING OF EXPERTS ON THE DRAFT DECLARATION OF GUIDING PRINCIPLES ON THE USE OF SATELLITE BROADCASTING FOR THE FREE FLOW OF INFORMATION, THE SPREAD OF EDUCATION AND GREATER CULTURAL EXCHANGE, Paris, May 1972. *Revised Final Report.* Paris, Unesco, 1972. /10 p. incl. Annex/. (COM-72/CONF.4/4 Rev.).
Also published in Fr.

Report dealing with the following: I. Background of the preparation of the Draft Declaration; II. General discussion (scope and objectives of the Declaration, role of States, responsibility of broadcasting organizations, problem of protecting the public from reception of unwanted programmes, need for measures to prevent illegal broadcasts if considered necessary by receiving States, form of the Declaration etc.); III. Consideration of Draft Declaration (its Preamble and article by article); IV. Text of the Draft Declaration unanimously recommended by the meeting. (Annex: List of participants).

102 _____. *Draft Declaration of guiding principles on the use of space broadcasting for the free flow of information, the spread of education and greater cultural exchange.* A report by the Unesco Secretariat. Paris, Unesco, 1972. /10 p. incl. Annex/. (COM-72/CONF.4/3).
Also published in Fr.

Working paper divided into two parts: firstly, the background of Unesco's activity in the field of international arrangements for space communication and an outline of the steps taken in preparation for the present meeting; and secondly, the text of a Draft Declaration submitted to the meeting for consideration (11 articles).

103 MEETING OF EXPERTS ON INTERNATIONAL PROFESSIONAL ARRANGEMENTS FOR SPACE BROADCASTING, Paris, October 1971. *Final Report.* Paris, Unesco, 1971. /12 p. incl. Annex/. (COM-71/CONF.5/8).
Also published in Fr.

Report presented under the following headings: I. The use of space communication for news transmissions; II. Advice on draft declaration of guiding principles on the use of space communication for the free flow of information, the spread of education and greater cultural exchange; III. Implications for broadcasters and news organizations of the ITU World Administrative Radio Conference for Space Telecommunications (June 1971); IV. Report on proposals for an international convention for protection of television signals transmitted by satellite. (Annex: List of participants).

104 _____. *First draft of Declaration on the guiding principles for the use of space communication for the free flow of information, the spread of education and greater cultural exchange.* Paris, Unesco, 1971. /8 p. incl. Add./. (COM-71/CONF.5/4 and Add. 1-2).
Also published in Fr.

The text of the first draft of the Declaration appears in document COM-71/CONF.5/4. Addendum 1 explains that the preliminary draft text was prepared by two consultants to the Secretariat, Professor Hilding Eek and Professor Fernand Terrou, and was revised by a Working Group drawn from the Unesco Panel of Consultants on Space Communication. It also mentions that the text of the draft is being submitted for advice to this meeting and will subsequently be further examined by the Unesco Panel of Consultants on Space Communication (November 1971). The final text for submission to the seventeenth session of the General Conference will be formulated by a group of experts convened for this purpose early in 1972. Addendum 2 mentions the authority for the principles enumerated in Article XII of the draft declaration.

105 _____. *Implications for broadcasters of decisions of the World Administrative Radio Conference for Space Telecommunications.* Paris, Unesco, 1971. 10 p. (COM-71/CONF.5/6).
Also published in Fr.

Paper prepared by the Secretariat of Unesco with the assistance of a consultant, Mr. F.D. Bolt, formerly of the British Broadcasting Corporation. Section I of this paper summarizes a number of specific decisions of the Conference, which may have significance for broadcasters, especially in the use of the broadcasting satellite service. Section II makes some general comments on the Conference decisions and on their implications for broadcasting and news organizations (broadcasting satellite service, point-to-point and distribution satellite communication, satellites for sound broadcasting).

106 _____. *International professional co-operation between broadcasting organizations* by Tor Gjesdal. Paris, Unesco, 1971. 16 p. (COM-71/CONF.5/3).
Also published in Fr.

The author analyses, under the following subtitles, the replies to the survey on programme exchanges between broadcasting organizations, carried out by the Unesco Secretariat between February and June 1971: I. The role of the regional unions; II. Framework of survey; III. Variations in response; IV. Wealth of material— Machinery for regional exchanges; V. Types of programme exchanges regionally; VI. Rules governing regional exchanges; VII. Exchanges between regions; VIII. Daily exchanges via Prague and Vienna; IX. Future use of space communication for regional and international exchanges; X. Expected changes in present practices.

107 MEETING OF EXPERTS ON INTERNATIONAL PROFESSIONAL ARRANGEMENTS FOR SPACE BROADCASTING, Paris, October 1971. *International professional co-operation between broadcasting organizations.* Paris, Unesco, 1971. 4 p. (COM-71/CONF.5/3 Add. 1).
Also published in Fr.

Reply received from the Union of National Radio and Television Organizations of Africa after the compilation of document COM-71/CONF.5/3 on the following: I. Exchange within the region; II. Exchange between regions; III. Future use of space communications for regional and international exchanges.

108 _____. *International professional co-operation between broadcasting organizations.* Paris, Unesco, 1971. 6 p. (COM-71/CONF.5/3 Add. 2).
Also published in Fr.

Reply received from the Arab States Broadcasting Union after the compilation of document COM-71/CONF.5/3, on the following: I. Exchange within the region; II. Exchange between regions; III. Future use of space communication for regional and international exchanges.

109 _____. *Space communication for news transmission; co-operation between broadcasters and news organizations* by J. Forest. Paris, Unesco, 1971. 6 p. (COM-71/CONF.5/5).
Also published in Fr.

Close co-operation between broadcast and press interests in the area of satellite communications would be of great benefit to the peoples and nations of the world. To this end, both the media and the international organizations have a part to play. On the broadcast and press interests falls the duty of recognizing that both media have much to gain by a common approach to the problems which will arise with communications satellites. To the organizations in the United Nations system falls the duty of ensuring that space broadcasting legal rules, regulatory practices and technical regulations allow for the participation of broadcasters, press and similar organizations in the satellite home broadcasting systems, on acceptable economic terms with the minimum control of programme content. Unesco might well take a leading role in providing a forum wherein newspapers, news agencies and broadcasters could discuss the best methods by which they could come together in the field of common interest in news dissemination by means of satellites.

110 MEETING OF EXPERTS ON THE USE OF SPACE COMMUNICATION FOR BROADCASTING, Paris, January 1968. *Report.* Paris, Unesco, 1968. [14 p. incl. Annex]. (COM/CS/68/1/7).
Also published in Fr.

This report enabled Unesco to ascertain and take into account the views of international and regional broadcasting unions, as well as other interested bodies, in the formulation of its programme for the promotion of international arrangements in the space communication field. (Annex: List of participants.)

111 _____. [Administrative document] Paris, Unesco, 1968. 7 p. (COM/CS/68/1/5).
Also published in Fr.

Summary of the information given by broadcasters and broadcasting unions in reply to a questionnaire sent out by Unesco (replies have been provided by the Asian Broadcasting Union, the Canadian Broadcasting Corporation, the European Broadcasting Union and the Union of National Radio and Television Organizations of Africa).

112 MEETING OF EXPERTS ON THE USE OF SPACE COMMUNICATION FOR BROADCASTING, Paris, January 1968. *Communication received by the Director-General from the President of the Asian Broadcasting Union.* Paris, Unesco, 1968. 2 p. (COM/CS/68/1/INF.2).
Also published in Fr.

Communication of the resolution recorded at the ABU's Fourth General Assembly held in Singapore. The hope is expressed that, as a result of the Meeting, an International Convention would be prepared for submission to an early Unesco General Conference making the use of television broadcasts by satellite, whether live or deferred, subject to the precise authorization of the originating organization and, in general, ensuring that broadcasting organizations are given the fundamental protection they need when originating transmissions by satellite.

113 _____. /Executive Board document/. Item 4.5.2 of the Provisional Agenda. Paris, Unesco, 1967. 3 p. (Unesco 76 EX/4).
Also published in Esp., Fr., Rus.

Document submitted to the 76th session of the Executive Board which recommends the convening, early in 1968, of a meeting thus permitting Unesco to ascertain and take into consideration the views of international and regional broadcasting unions and other interested bodies in developing its programme for the promotion of international arrangements in the space communication field.

114 _____. *Note on the Meeting of Experts on the Use of Space Communication for Broadcasting.* Paris, Unesco, 1967. 3 p. (COM/WS/7).
Also published in Fr.

Paper containing data on recommendations, proposals and actions taken by previous meetings, panels and conferences. The document also mentions that the suggestions and conclusions of the expert meeting will be taken into account in the Director-General's report to the General Conference on International Arrangements in the Space Communication Field. The Meeting will also serve as guidance in the elaboration of the report Unesco is to submit on the same subject to the International Conference on the Exploration and Peaceful Uses of Outer Space which the United Nations is convening in August 1968.

115 _____. *The possible uses of space communication by the press in news collection, transmission and dissemination* by J. Forrest. Paris, Unesco, 1967. 14 p. (COM/CS/68/1/3).
Also published in Fr.

Paper prepared at the request of Unesco for discussion at the Meeting and in which it was said that Unesco would well serve the ideals of its Constitution if it were able to assist the press in its effort to emphasize press telecommunication requirements in the satellite field. There is an acute awareness in many parts of the press that unless those responsible for the concept and operation of satellite systems can be made aware of the particular requirements of the press then those requirements will be lost in the rush to involve satellite systems as a simple extension of terrestrial communication systems.

116 _____. *Statement to the Meeting...* by M.W. Robinson. Paris, Unesco, 1968. 2 p. (COM/CS/68/1/INF.3).

Statement on behalf of the Outer Space Affairs Group of the United Nations, reflecting the views of the United Nations Committee on the Peaceful Uses of Outer Space which it serves. It is the feeling of the Committee that prior to any substantive exploration of international arrangements for a potential

satellite system, a detailed examination of the technical, economic and political parameters must be made so that subsequent international arrangements will reflect the actual technical capabilities and economic factors involved.

117 MEETING OF EXPERTS ON THE USE OF SPACE COMMUNICATION FOR BROADCASTING, Paris, January 1968. *Working paper to serve as basis for report by the Director-General to the 1968 General Conference of Unesco on international arrangements in the space communication field.* Paris, Unesco, 1967. 13 p. (COM/CS/68/1/4).
Also published in Fr.

Paper presented under the following headings: I. Terms of reference; II. Problems posed on the international level (implications of space radio technique, implications of satellite communication; III. International co-operation and international arrangements - and suggesting that the Unesco General Conference be invited: (a) to bring the conclusions of this report to the attention of Member States and Associate Member States of Unesco, as well as of the United Nations and the Specialized Agencies and of non-governmental organizations concerned; (b) to authorize the Director-General to convene, in 1969-1970, an intergovernmental meeting of experts for defining the subjects of international agreements in the field of space communication with regard to the broad aims of Unesco; and for preparing a draft declaration of principle for possible adoption by the General Conference concerning the conduct of space communication for peaceful purposes embodying the principles already adopted by the United Nations and the ITU with regard to space communication, specifying the principles of particular importance to Unesco for the promotion of the free flow of information, education and cultural exchanges.

118 MEETING OF EXPERTS ON THE USE OF SPACE COMMUNICATION BY THE MASS MEDIA, Paris, December 1965. *Report.* Paris, Unesco, 1966. /40 p. incl. Annex/. (UNESCO/MC/52).
Also published in Fr.

Defines the principles and main lines of a long-term programme to promote the use of space communication for the free flow of information, the rapid spread of education and greater cultural exchange. The report follows the sequence of the following list of topics: I. Technical capabilities and economic aspects; II. Social implications; III. Transmission of news; IV. Radio and television broadcasting; V. Education and cultural exchange. A concluding section deals with the suggestions of the meeting concerning Unesco's programme in the space communication field.

119 _____. "Achieving a balance between regions" by M.M. Khatib. In: *Communication in the space age;* the use of satellites by the mass media. Chapter 6, Perspective for the developing countries. Paris, Unesco, 1968. pp. 113-118.
Also published in Fr. $4; 20/-stg.; 14 F.

The development of space communication provides an opportunity to introduce it as a catalytic agent to galvanize faster progress in the developing areas. - To reach an understanding for sharing the services of space communications at a later time may be more difficult than it would be now. - Development and trial of space-communication units should become a co-operative "world project". - Ways and means should be devised for associating the developing countries in all technical stages of satellite development. - Principles of co-operation in the social, cultural and economic fields should be laid down, aimed at the exploitation of space as a vehicle for the mass media for direct world-wide contact.

120 MEETING OF EXPERTS ON THE USE OF SPACE COMMUNICATION BY THE MASS MEDIA, Paris, December 1965. "Benefits of world exchanges" by Aldo Armando Cocca. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 4, Cultural opportunies. Paris, Unesco, 1968. pp. 77-82. (Working Paper: UNESCO/SPACE/COM/12).
Also published in Fr. $4; 20/-stg.; 14 F.

Answers to the question: "What space communication can do to extend cultural exchange on a global scale, and how this would affect relationships between peoples" are given by the author. Not only are the advantages of the new communications system obvious (speed, coverage, annihilation of distance, better transmission) but cultural programmes also offer the promise of secondary benefits (progress of science, greater human contacts, international understanding).

121 _____. *Communication satellites and the mass media: Economic aspects* by Ernest D. Wenrick. Paris, Unesco, 1965. 18 p. incl. Annex. (UNESCO/SPACE/COM/5).
Also published in Fr.

Mass media are taken to include radio, television, newspapers and computer data exchange. Under economic aspects, it discussed alternative means of transmission (ground systems, airborne television and satellites); the demand for services of mass media; supply conditions (limits on the number and types of organizations that might operate satellites); and effects on other products and services (the possibility that business travel might be reduced with the advent of closed-circuit television conferences for example). (Annex: References).

122 _____. *Communication in the space age;* the use of satellites by the mass media. Paris, Unesco, 1968. 200 p. incl. Annex.
Also published in Fr. $4; 20/-stg.; 14 F.

Based on a score of studies (mentioned in the present list) submitted by specialists in the development of space communication to the Meeting, to consider the use of communication satellites for education, science and culture. (Annex: List of participants).

123 _____. "Evolution of satellites and orbits" by N.I. Tchistiakov. In: *Communication in the space age*; the use of satellites by the mass media, Chapter 7, The state of the art: Technical capabilities. Paris, Unesco, 1968. pp. 138-146. (Working Paper: UNESCO/SPACE/COM/20).
Also published in Fr. $4; 20/-stg.; 14 F.

The succesful use of communication satellites in the United States and the Soviet Union now permit evaluations of the real possibilities and perspectives of satellites on different orbits for broadcasting. Advantages of the synchronous satellites and of the prolonged and inclined elliptical orbit as well as of direct broadcasting and of retransmission are given. At the present stage, most important is the development and improvement of the national network. Satellite communication systems must be designed with limitation of range and duration of time of use.

124 MEETING OF EXPERTS ON THE USE OF SPACE COMMUNICATION BY THE MASS MEDIA, Paris, December 1965. "Extending the range of broadcasting" by Valter Feldstein. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 5, New dimensions for radio and television broadcasting. Paris, Unesco, 1968. pp. 106-110. (Working Paper: UNESCO/SPACE/COM/15). Also published in Fr. $4; 20/-stg.; 14 F.

At the present stage of development, the economic problems of space communication seem the most urgent. There is a need to solve the problem of high tariffs charged for the use of satellites and ground stations, these tariffs being especially difficult for the economically weaker television organizations. Space communication offers very promising prospects for substantially extending the range of radio and television broadcasting, and almost unlimited possibilities of international exchange of programmes.

125 _____. "A feasibility study of a pilot project using a communication satellite primarily for educational television". In: *Communication in the space age;* the use of satellites by the mass media, Chapter 9, Suggestions for Unesco's programme in space communication. Paris, Unesco, 1968. pp.188-190. Also published in Fr. $4; 20/-stg.; 14 F.

Summary of a report to Unesco by Albert S. Horley; William K. Linvill; Allen M. Peterson; Wilbur Schramm of Stanford University, Stanford, California (U.S.A.). The weight of effort in such a pilot project would almost necessarily be on the development of a workable satellite educational television system, and of the social arrangements and organization necessary to accommodate it and use it efficiently. India, as one example would seem to offer a good choice for the application of a pilot project.

126 _____. "International co-operation and international control" by H. Eek. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 8, Building an international framework. Paris, Unesco, 1968. pp. 160-168. (Working Paper: UNESCO/SPACE/COM/10). Also published in Fr. $4; 20/-stg.; 14 F.

This paper has not been organized in such a manner that it leads to conclusions which demand acceptance. The problems which have been mentioned seem, however, to indicate that the development of space law in general must remain the responsibility of the United Nations. At the same time, several Specialized Agencies must continue their work in order to facilitate the orderly use of outer space. Among such agencies are the ITU and Unesco, and probably others as well.

127 _____. *Message from His Excellency, U. Thant, Secretary-General of the United Nations.* Paris, Unesco, 1965. 1 p. (UNESCO/SPACE/COM/INF.5). Also published in Fr.

The consequences of both events: the splitting of the atom and man's flight into outer space have had a similar impact on humanity, bringing home dramatically the realization of mankind's common destiny. The United Nations, in a series of resolutions of the General Assembly dating from 1958, should be concerned with principles and measures to promote international co-operation in the exploration and use of outer space, including the development and utilization of space communications.

128 MEETING OF EXPERTS ON THE USE OF SPACE COMMUNICATION BY THE MASS MEDIA, Paris, December 1965. "The need for international agreements" by F. Terrou. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 8, Building an international framework. Paris, Unesco, 1968. pp. 169-177. (Working Paper: UNESCO/SPACE/COM/13).
Also published in Fr. $4; 20/-stg.; 14 F.

The exploration of space is, by its very nature, international. It is, therefore, altogether normal that concern with the regulation of space activities should have been manifested from the outset at the international level. The remarkable progress which can already be made through satellites, in the range and rapidity of transmission, poses, in a world still bristling with barriers, immediate practical problems and, at the very least, makes all the more critical the uncertainties and inadequacies of the international adaptation of legal provisions to technical progress.

129 _____. *Opening statement* by Malcolm S. Adiseshiah, Acting Director-General of Unesco. Paris, Unesco, 1965. 3 p. (UNESCO/SPACE/COM/INF.4).
Also published in Fr.

The orator points out that this meeting has been conceived more as a round-table discussion than as a formal conference. In that spirit, experts have been invited to participate in an individual capacity and not as government representatives. He hopes that during the five days' meeting the experts will find themselves engaged in a frank and open exchange of ideas and experience, a friendly harmonization of different approaches and even of diverging views. The experts' task is to provide advice and guidance on a "long-term programme to promote the use of space communication for the free flow of information, the rapid spread of education and greater cultural exchange". In considering this matter, they will no doubt wish to take account of Unesco's present programme for mass communication development, which was undertaken at the request of the United Nations. The aim is to help develop national media of information, for which telecommunication is, of course, as essential as arteries are to the body. Suggestions emerging from the meeting will be studied with the greatest care by the Director-General.

130 _____. "The peaceful uses of outer space: role of the United Nations Committee in general and concerning space communication in particular"; a communication by the United Nations. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 8, Building an international framework. Paris, Unesco, 1968. pp. 155-159. (Working Paper: UNESCO/SPACE/COM/16).
Also published in Fr. $4; 20/-stg.; 14 F.

Review of the work done by the United Nations in the field of outer space. The Committee on the Peaceful Uses of Outer Space and its two sub-committees on scientific and technical matters and legal questions furnishes the focal point for international co-operation envisaged by the General Assembly. More specifically, with regard to space communication, the United Nations recognized the value of communication via satellites as early as 1959 when, in its *ad hoc* committee report, it called upon the International Telecommunication Union to begin a study of the problem at once.

131 MEETING OF EXPERTS ON THE USE OF SPACE COMMUNICATION BY THE MASS MEDIA, Paris, December 1965. "The possible use of communication satellites in Africa" by I.O.A. Lasode. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 6, Perspective for the developing countries. Paris, Unesco, 1968. pp. 119-122. (Working Paper: UNESCO/SPACE/COM/21).
Also published in Fr. $4; 20/-stg.; 14 F.

In view of the interest which had been expressed in the role that developing countries may play in the full utilization of space communication by the mass media, it is intended in this paper (written by an engineer who has been closely connected with studying progress in the development of satellite communications technique since 1958 and its application to the telecommunications systems of Nigeria) to consider some of the problems that may confront developing countries, especially those in Africa.

132 _____. "Possible uses of satellites in education" by Henri Dieuzeide. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 3, Education by satellites. Paris, Unesco, 1968. pp. 61-73 incl. Annex. (Working Paper: UNESCO/SPACE/COM/11).
Also published in Fr. $4; 20/-stg.; 14 F.

Communication satellites add new dimensions to existing techniques for use of the mass media in education. They may, before long, help the developing countries in their efforts to combat illiteracy and to accelerate the education process generally. (Annex: Account of an early experiment in educational broadcasting by satellite which took place in 1965, namely the Paris-Wisconsin project).

133 _____. "Prediction, realization and forecast" by Arthur C. Clarke. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 1, Social implications of the space age. Paris, Unesco, 1968. pp. 30-38. (Working Paper: UNESCO/SPACE/COM/8).
Also published in Fr. $4; 20/-stg.; 14 F.

Great changes are forecast in this article which follows the sequence of the following list of topics: I. The orbital post office; II. Orbital newspapers; III. Intercontinental telephony; IV. Much less letter writing; V. Teaching English on a global basis; VI. We shall sleep and quarrel less; VII. The day of the city is ending; VIII. The electronic blackboard; IX. The world of the communications satellites /Also issued in: *The Unesco Courier* (Paris), November 1966, pp. 24-29/; X. The first to benefit.

134 _____. */Proposals submitted to the Meeting in the name of the International Press Telecommunications Committee, the International Federation of Newspaper Publishers and the Commonwealth Press Union/*. Paris, Unesco, 1965. 1 p. (UNESCO/SPACE/COM/INF.6).
Also published in Fr.

In consideration of the proposals submitted and in order to promote the realization of those views it is requested that a joint advisory body be established and be charged with the task of examining this and all other means by which the world flow of news could be improved through developments in the field of space communication.

135 MEETING OF EXPERTS ON THE USE OF SPACE COMMUNICATION BY THE MASS MEDIA, Paris, December 1965. "Recommendations of the meeting of experts". In: *Communication in the space age;* the use of satellites by the mass media, Chapter 9, Suggestions for Unesco's programme in space communication. Paris, Unesco, 1968. pp. 181-187.
Also published in Fr. $4; 20/-stg.; 14 F.

Experts' suggestions as recorded in the report of the Meeting and the most important aspects of the report are reproduced in this article which follows the sequence of the following list of topics: I. International co-operation; II. Co-operation with other organizations; III. Studies and research; IV. Assistance to Member States; V. International arrangements; VI. Meetings of experts.

136 _____. "Responsible presentation of the news in the space era" by Lord Francis-Williams. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 2, The flow of the news. Paris, Unesco, 1968. pp. 41-49. (Working Paper: UNESCO/SPACE/COM/17).
Also published in Fr. $4; 20/-stg.; 14 F.

Report concerned primarily with the practical effects of the development of communication satellites on the transmission of news and with the kind of decisions that may be needed to secure the maximum advantage from this technological advance. However, before turning to these practical problems the author considers briefly what may be described as some of the philosophic implications of space communication in the field of news. It would not be sensible to consider responses to the opportunities and challenges offered by this new technological development without clarifying the fundamental objectives of news distribution.

137 _____. "Some legal aspects of television transmission by satellites" by Georges C. Straschnov. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 5, New dimensions for radio and television broadcasting. Paris, Unesco, 1968. pp. 93-100. (Working Paper: UNESCO/SPACE/COM/7).
Also published in Fr. $4; 20/-stg.; 14 F.

The following conclusions can be drawn from this report: I. At the present stage when the satellite in service is utilizable at the most for transatlantic news transmissions, the legal problems fall mainly within the realm of public law and, to a lesser extent, within that of private law; II. If future developments permit economical use of satellites for the transmission of artistic programmes, the legal questions will become more numerous; III. If it is assumed that technical development will one day reach a stage where viewers can receive broadcast transmitted by satellite direct, television organizations will be obliged to recast entirely the present contracts, while States will no doubt have to consider revising the intergovernmental conventions.

138 _____. "Some possible social effects of space communication" by Wilbur Schramm. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 1, Social implications of the space age. Paris, Unesco, 1968. pp. 11-29. (Working Paper: UNESCO/SPACE/COM/3).
Also published in Fr. $4; 20/-stg.; 14 F.

The communication satellites, as they are likely to develop, offer a unique opportunity and a plentiful incentive for the people of the earth to talk together within nations and across national borders, to inform themselves about each other, to share a new technology which is of great potential usefulness to man. But to attain this premise does indeed require men to talk together, to plan most carefully and considerately at long range, and to put the problem, from the very first, into its international framework.

139 MEETING OF EXPERTS ON THE USE OF SPACE COMMUNICATION BY THE MASS MEDIA, Paris, December 1965. "Space communication for developing countries: India as an example" by Narayana V.K. Menon. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 6, Perspective for the developing countries. Paris, Unesco, 1968. pp. 123-128. (Working Paper: UNESCO/SPACE/COM/14).
Also published in Fr. $4; 20/-stg.; 14 F.

The difference in the problems facing the developing countries and the so-called "undeveloped" countries in the use of space communication is not a clear-cut or obvious one. The problems are no easier in one area than in the other, paradoxical as it may seem. After all, in some respects, innocence is the highest achievement of the intellect. India taken as an example partly because the author knows India best and also partly because in many respects it is typical of the diversities and contradictions one comes across in many developing countries.

140 _____. "Technical aspects of direct broadcasting" by J. Persin. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 7, The state of the art: technical capabilities. Paris, Unesco, 1968. pp. 147-151. (Working Paper: UNESCO/SPACE/COM/6).
Also published in Fr. $4; 20/-stg.; 14 F.

Important technical problems remain to be solved before high quality direct broadcasting from satellites can be established. - Review of the work done by the International Radio Consultative Committee. - Attempt made to give the salient points of the report adopted by the C.C.I.R. on the technical parameters for direct broadcasting by satellites (preferred satellite orbit; compatibility with existing terrestrial broadcasting systems and standards; frequencies; order of power, interference and power flux density limitation, etc.).

141 _____. "Technical possibilities for radio and television services by satellites" by L. Jaffe. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 7, The state of the art: technical capabilities. Paris, Unesco, 1968. pp. 131-137. (Working Paper: UNESCO/SPACE/COM/19).
Also published in Fr. $4; 20/-stg.; 14 F.

The purpose of this paper is to discuss the technical possibilities for providing radio and television services via satellites to conventional home receivers, as well as to specially designed receivers which might be used for specific information distribution systems that could be applicable to the requirements of educational services. Estimates are given and optimistic conclusion concerning the rate of technological development is drawn.

142 _____. "Telecommunication satellites and the European Broadcasting Union" by Treeby J. Dickinson. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 5, New dimensions for radio and television broadcasting. Paris, Unesco, 1968. pp. 101-105. (Working Paper: UNESCO/SPACE/COM/18).
Also published in Fr. $4; 20/-stg.; 14 F.

The activities of the European Broadcasting Union in the field of telecommunication satellites are restricted to undertaking, on behalf of its members and in their name, those tasks which are better carried out centrally and by one organization. The EBU plays no direct part in the establishment or exploitation of the telecommunication satellites, nor can it lease such facilities "in bulk" on a long-term basis, for subsequent retailing to the ultimate customers in Europe. Information on the kinds of circumstances in

which the members of the EBU might wish to utilize point-to-point satellites and on the difference of principle between broadcasting and point-to-point radio communication is given.

143 MEETING OF EXPERTS ON THE USE OF SPACE COMMUNICATION BY THE MASS MEDIA, Paris, December 1965. "Telecommunication and the transmission of news" by Ivor Ray. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 2, The flow of news. Paris, Unesco, 1968. pp. 51-57. (Working Paper: UNESCO/SPACE/COM/4).
Also published in Fr. $4; 20/-stg.; 14 F.

The author draws the following conclusions: I. The free flow of news between nations depends on the ability of telecommunication authorities to supply adequate and reliable communications; II. Where high-frequency radio propagation offers the sole method of communication, the number of circuits is restricted; III. Where adequate and reliable communications have now been established by submarine telephone cable, there has been a remarkable improvement in the flow of news, in both speed and quantity; IV. The scheduled radio-communication (press broadcast) provides an exception to the general rule (proposal of the International Federation of Newspaper Publishers).

144 _____. "Transfer of information between libraries" by Harry C. Campbell. In: *Communication in the space age;* the use of satellites by the mass media, Chapter 4, Cultural opportunities. Paris, Unesco, 1968. pp. 83-89. (Working Paper: UNESCO/SPACE/COM/9).
Also published in Fr. $4; 20/-stg.; 14 F.

This paper is concerned with the effect of communication satellites in the period 1965-1980 on national, public and research libraries in both developed and newly developed countries. Particular attention is paid to the needs of newly developing countries since they require a greater initial investment in research libraries in order to handle the full range of available information. Probable necessity within a very few years to organize a new United Nations Specialized Agency or Bureau dealing exclusively with intergovernmental questions in the field of information transmission.

145 MEETING OF GOVERNMENT EXPERTS ON INTERNATIONAL ARRANGEMENTS IN THE SPACE COMMUNICATION FIELD, Paris, December 1969. *Report.* Paris, Unesco, 1970. /33 p. incl. Annex/. (COM/MD/15).
Also published in Esp., Fr., Rus.

The problems involved in the use of space communication for the free flow of information, the rapid spread of education and greater cultural exchange were examined. The meeting advised on a possible convention to ensure legal protection of satellite television transmissions against uses not authorized by the originating body; defined the studies which might be prepared by Unesco on space communication; assessed the requirements of education, science and culture in the allocation of frequencies for space communication; and made suggestions as to a draft declaration on the guiding principles which might govern the use of space communication for the furtherance of Unesco's aims. (Annex: List of participants).

146 _____. *Address* at the opening, by René Maheu, Director-General of Unesco. Paris, Unesco, 1969. 4 p. (UNESCO DG/69/10).
Also published in Fr.

The Director-General mentions in his address that the meeting has been organized in pursuance of resolution 4.141, which was adopted, at his suggestion, by Unesco's General Conference at its fifteenth session. Its object is summarized in the three main items of the provisional agenda of the meeting,

which derive directly from the terms of that resolution. Participants to this meeting have been gathered to give their opinion on the measures which should be taken to ensure that space communication fulfils all the promises it holds for the intellectual enrichment and mutual understanding - in a word, the progress and brotherhood of the community of mankind.

147 MEETING OF GOVERNMENT EXPERTS ON INTERNATIONAL ARRANGEMENTS IN THE SPACE COMMUNICATION FIELD, Paris, December 1969. *Address* by M. Mili, Secretary-General of the ITU, at the inaugural session. Geneva, ITU, 1969. 7 p.

Address drawing upon ITU and Unesco activities which are along different but convergent lines since both organizations are pledged to a common ideal - the maintenance of peace by fostering mutual understanding among all the peoples of the earth. The Secretary-General thinks that this meeting is timely as it will lay the necessary foundations for an exact evaluation of the sum of national requirements, and particularly of global requirements in the way of educational broadcasting, early enough for countries to define their points of view and for the indispensable co-ordination to be effected before the 1971 ITU Space Conference is held.

148 _____. *Beyond Babel: The century of the communications satellite,* address to the meeting by Arthur C. Clarke. Paris, Unesco, 1969. 16 p. (COM/CONF.3/INF.3).

Also issued in: (a) *The Unesco Courier* (Paris), March 1970, pp. 32-37. Ar., Dt., Eng., Esp., Fr., Heb., Hind., It., Jap., Per., Rus., Tam. 2/-stg.; 40 cents; 1.20 F.

(b) *Broadcasting from space* (Paris), 1970, pp. 48-51. (Reports and papers on mass communications, No. 60). Eng., Fr. $1.50; 45 p. 6 F.

The author explores some of the further vistas which might be overlooked in our concern with more immediate problems; criticisms concerning those who have argued that communications satellites represent only an extension of existing communications devices, and that society can therefore absorb them without too great an upheaval.

149 _____. *International arrangements to promote the use of space communication for the free flow of information.* Paris, Unesco, 1969. 15 p. (COM/SPACE/3).
Also published in Esp., Fr.

This document prepared by the Unesco Secretariat examined the applications of space communication (satellite news broadcasts, educational television via satellite, cultural and scientific exchange) particularly with a view to the international arrangements that may be needed.

150 _____. *Legal protection of television broadcasts transmitted via satellites against their use without the permission of the originating organization* by Georges Straschnov. Paris, Unesco, 1969. 11 p. (COM/SPACE/4).
Also published in Esp., Fr., Rus.

This document studies the problems involved in preparing international arrangements. A study was made of the control by the originating organization of the uses of its television signal transmitted via satellite, together with the de facto situation as it is now and as it will be when regional satellites are in service; also an analysis of international conventions and arrangements at present in force.

151 MEETING OF GOVERNMENT EXPERTS ON INTERNATIONAL ARRANGEMENTS IN THE SPACE COMMUNICATION FIELD, Paris, December 1969. *Report submitted by the International Telecommunication Union.* Paris, Unesco, 1969. 22 p. incl. Annexes (COM/SPACE/5).
Also published in Esp., Fr.

Provides general information on certain technical aspects of sound and picture broadcasting from the point of view of existing frequency regulations. Deals with broadcasting, frequency spectrum usage and management, co-ordination of frequency usage in broadcasting and future prospects, broadcasting in the world and the future of broadcasting satellites. (Annex 1: Chart of regions as defined in table of frequency allocations. Annex 2: Resolution No. 653).

152 _____. *The United Nations and space communications* by the United Nations. Paris, Unesco, 1969. 13 p. (COM/SPACE/6).
Also published in Esp., Fr., Rus.

Report presented on behalf of the Secretary-General of the United Nations which reviews resolutions adopted by the General Assembly of the United Nations, as well as the work of its subsidiary bodies, in space communications; contains suggestions for further studies in this field.

153 _____. *The use of communication satellites in education, science and culture* by the International Film and Television Council. Paris, I.F.T.C., 1969. 3 p. (DOC.364).
Also published in Fr

Report resulting from the meeting organized by the International Film and Television Council on 1 December 1969 on the use of communication satellites in education, science and culture and submitted to this Meeting. The report does not emphasize so much technical ways and means but rather the needs, quality, content and use of programmes to be transmitted, adequate infrastructures and the training of personnel in the new methods involved, as well as the necessary degree of preliminary research.

See also under Entries No. 014, 091, 188

154 MEETING ON MANAGEMENT AND PLANNING OF NEW COMMUNICATION SYSTEMS, Paris, October 1973. *Report.* Paris, Unesco, 1974. /19 p. incl. Annexes/. (COM/MD/29).
Also published in Esp., Fr.

The meeting served to explore different approaches to management and planning which are tested in new communication projects or have become accepted practice in expanding ones. The projects reviewed are of widely varying scale and located in developed as well as developing countries; governing socio-political conditions range from centralized control of operations to regional schemes with much autonomy or designs for strictly local needs. The purpose of the meeting - to make minds meet in order to reduce, if not avoid, costly social and economic mistakes in new project ventures - was achieved. (Annex I: *Annotated list of papers submitted to the meeting* - inter alia the following: 1. Three Canadian Projects: The Northern Pilot Project (NPP); The Communications Technology Satellite (CTS) Experiments Programme; The Fogo Process; User-Oriented Communication Systems and Social Development. 2. The United States Rocky Mountain Satellite Project. 3. The Indian Satellite Instructional Television Experiment "SITE". 4. Country reports and position papers - among others - "Educational television in the USSR" - "Feasibility study of a regional system of tele-education in nine countries of South America, SERLA". Annex II: List of participants).

155 MEETING ON MANAGEMENT AND PLANNING OF NEW COMMUNICATION SYSTEMS, Paris, October 1973. *A management perspective. The Rocky Mountain Satellite Project* by B.D. Mason and J.H. Peterson. Paris, Unesco, 1973. 77 p. incl. Appendices, Tables.(COM-73/CONF.605/2b).

Paper prepared for Unesco with a view to assisting in planning and operating social service delivery systems which utilize technology as a component of the system. An analysis of a recent experiment in the United States with the Rocky Mountain Satellite Project; with a major focus on management needs. (Appendices: A-H: The original participants and their roles - The technological and social service questions to be studied - The initial and revised goals and objectives - The major tasks related to the October 1972 goals and objectives - The project resources - The project constraints - Alternative management processes - FRMS administrative/management system: operational procedures "FRMS project operations manual").

156 MEETING OF PANEL OF OFFICERS OF THE MEETING OF EXPERTS ON THE USE OF SPACE COMMUNICATION BY THE MASS MEDIA, Paris, 1966. *Report.* Paris, Unesco, 1966. 8 p. incl. Annex. (UNESCO/SPACE/COM/PANEL 1/4).

Examination of the draft report to the General Conference on Unesco's long-term programme and the proposal for an experimental project on satellite communication. Urgency of international action to ensure that the immense new possibilities be opened up and made available to all. International arrangements (use of satellite communication at the international level as a public service and control regulated in the public interest). Planning the use of satellite communications (methods and practical issues). (Annex: The nature of a possible pilot project /India as an example/).

157 MEETING OF UNESCO ADVISORY PANEL ON SPACE COMMUNICATION, Paris, 2nd session, 1967. *Report.* Paris, Unesco, 1967. /10 p. incl. Annex/. (COM/CS/31/I).

Report dealing with the following: I. Results of decisions taken by the General Conference at its fourteenth session with regard to Unesco's programme in the space communication field, including the functioning of the Panel; II. Oral reports given by participants who directly or indirectly pointed out that communication satellite techniques now being developed are far ahead of the planning of their use by the mass media, in particular for broadcasting purposes, and emphasized the urgency of action; III. International arrangements in the field of space communication required to ensure the utilization of this new technique; IV. Statement by N. Menon concerning a pilot project in India seen favourably by governmental circles in this country. (Annex: List of participants).

158 MEETING OF UNESCO ADVISORY PANEL ON SPACE COMMUNICATION, Paris, 3rd session, 1967. *Report.* Paris, Unesco, 1968. 6 p. incl. Annex. (COM/CS/164/5).

Report dealing with the following: I. Complete support of the international Telecommunication Union for the Unesco space communication programme assured by Mr. Mili, Secretary-General of the ITU; II. Report on possible pilot project on the use of satellite communication for education and economic development in India; III. Convening of a meeting of experts on the use of space communication for broadcasting; IV. Report by the Director-General to the General Conference on international arrangements in the space communication field; V. Report, by Unesco to the United Nations Conference on the exploration and peaceful uses of outer space (Vienna, 1968) which took into account the basic policy aspects of Unesco's programme in the space communication field and was in general based on the study made by Wilbur Schramm. (Annex: List of participants).

159 MEETING OF UNESCO ADVISORY PANEL ON SPACE COMMUNICATION, Paris, 3rd session, 1967. *Working paper to serve as basis for report by the Director-General to the 1968 General Conference of Unesco on international arrangements in the space communication field.* Paris, Unesco, 1967. 12 p. (COM/CS/164/3).

Report taking into account the conclusions and recommendations of previous meetings and dealing with problems posed on the international level (implications of space radio techniques and satellite communication) and with international co-operation and international arrangements.

160 MEETING OF UNESCO ADVISORY PANEL ON SPACE COMMUNICATION, Stockholm, 4th session, 1968. *Report.* Paris, Unesco, 1968. /9 p. incl. Annex/. (COM/SPACE/PANEL IV/3).

The meeting met at the Swedish Broadcasting Corporation and dealt with the following: I. Report on the current status of the project on the use of satellite communication in India given by Tor Gjesdal; II. Results of the United Nations Conference on the Exploration and Peaceful Uses of Outer Space (Vienna, 1968) given by Abdel Ghani; III. Report on Unesco expert mission to Brazil concerning the feasibility of a communication satellite programme, particularly for educational purposes; IV. Proposed meeting of governmental experts on international arrangements in space communication. (Annex: List of participants).

161 MEETING OF UNESCO PANEL OF CONSULTANTS ON SPACE COMMUNICATION, Paris, 5th session, 1969. /*Report*/. Paris, Unesco, /1969/. /8 p. incl. Annex/. (COM/CONF/1/2).

Report dealing with the following: I. Re-election of Mr. Rydbeck as Chairman for the period 1969-1970; II. Oral reports given by participants on developments of relevance to the work of the Panel and of Unesco in the field of space communications; III. Convening of a meeting of government experts to assist in formulating "proposals concerning international arrangements and conventions to promote the use of space communication for the furtherance of Unesco's aims"; IV. Studies on the use of space communication for national development (India, Brazil, Pakistan and Argentina). (Annex: List of participants).

162 _____. /*Administrative document*/. Paris, Unesco, 1969. 2 p. (COM/SPACE/PANEL V/6).

Organizations proposed by the Director-General to the Executive Board to be invited to send Observers to the Meeting of Government Experts on international arrangements in the space communication field to be held at Unesco House, Paris, 2-9 December 1969.

163 _____. *Basic specifications for a satellite system for education in Argentina* by T.M. Tabanera. Paris, Unesco, 1969. 25 p. incl. Annexes. (COM/SPACE/PANEL V/3).
Also published in Esp.

Report prepared under commission from Unesco as background for a possible Unesco expert mission to Argentina. The possibility is studied of implementing an educational system using a satellite as a retransmitting station for the programmes broadcast from one or more ground stations in Argentina. (Annex I: Bibliography. Annex II: Cost estimates for direct receivers).

164 MEETING OF UNESCO PANEL OF CONSULTANTS ON SPACE COMMUNICATION, Paris, 6th session, 1970. *Report*. Paris, Unesco, [1970]. 8 p. (COM/SPACE/PANEL/VI/3).

Report dealing with the following: I. Progress Reports by participants; II. Report of the expert mission on the use of space communication for education and national development in South America; III. Report of the Meeting of Government Experts on international arrangements in the space communication field (2-9 December 1969); IV. Reports requested by the United Nations Committee on the Peaceful Uses of Outer Space and its Working Group on Direct Broadcast Satellites; V. Draft declaration of guiding principles on the use of space communication for the free flow of information, the spread of education and greater cultural exchange; VI. Measures to prevent use of television transmissions not authorized by the originating body; VII. Unesco clearing house on space communication; VIII. Programme of the education sector; IX. Constitution of the Unesco Panel of Consultants on Space Communication (1971-1972).

165 MEETING OF UNESCO PANEL OF CONSULTANTS ON SPACE COMMUNICATION, Paris, 7th session, 1971. *Report*. Paris, Unesco, 1972. [10 p. incl. Annex]. (COM/SPACE/PANEL VII/2).

Report dealing with the following: I. Reports by participants of current developments in space communication; II. Progress Report by the Secretariat on Unesco's Space Communication Programme (progress made on the feasibility and planning study for a South American regional system of education, culture and development using modern communication media including satellites - Unesco ITU expert mission to the Arab States - Consultations with the Indian Government on its satellite experiment - etc.); III. Report of the Meeting of Experts on International Professional Arrangements for Space Broadcasting, 1971; IV. Advice on draft declaration of guiding principles on the use of space broadcasting for the free flow of information, the spread of education and greater cultural exchange; V. Advice on Unesco's future programme in the space communication field; VI. Future meeting. (Annex: List of participants).

166. MEETING OF UNESCO PANEL OF CONSULTANTS ON SPACE COMMUNICATION, Paris, 8th session, 1973. *Report*. Paris, Unesco, 1974. [8 p. incl. Annex]. (COM/SPACE/PANEL/VIII/2).
Also published in Fr.

Report dealing with the following: I. Reports by participants on recent satellite developments; II. Report by the Secretariat on Unesco's Space Communication Programme (oral report on activities in Unesco's space communication programme since the last meeting of the Panel); III. Declaration of guiding principles on the use of space communication for the free flow of information, the spread of education and greater cultural exchange; IV. Advice on future programme (Unesco's future role in the field of space communication and general lines of the programme for the 1975-1976 biennium). (Annex: List of participants).

MENON, Narayana V.K.
See under Entry No. 139

MILI, M.
See under Entry No. 147

167 MUNTEANU, Robert L. "Global assault on the weather". In: *The Unesco Courier* (Paris), November 1966, pp. 17-23.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/6-stg.; 30 cents; 1 F.

The launching of the world's first weather satellite in 1960 opened a new era in meteorology. Weather forecasting and exploration of the atmosphere can now be based on data obtained promptly and on a truly global scale. But even today only one-quarter of the surface of the globe has enough meteorological stations. To fill the gaps in the present weather observation network, the World Meteorological Organization is planning a bold new adventure in international co-operation - the World Weather Watch.

168 NAESSELUND, Gunnar. "International problems of television via satellite". A major debate at Unesco's recent General Conference. In: *The Unesco Courier* (Paris), February 1973, pp. 21-23.
Also published in Ar., Dt., Esp., Fr., Heb., Hind., It., Jap., Ned., Per., Por., Rus., Tam. 13 p. stg.; 50 cents; 1.70 F.

Article stating that a series of studies, meetings and negotiations culminated in a "Declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange", setting out in a Preamble and 11 Articles, principles for guidance of Member States in the use and development of this new technology. The guidelines were finally adopted at the 1972 Unesco General Conference by a large majority, but the debates - as well as the voting figures - revealed a conflict of views which will not be easily reconciled.

169 NATIONAL SEMINAR ON THE USE OF A DOMESTIC SATELLITE COMMUNICATION SYSTEM, Jakarta, Indonesia, September 1974. *Software planning for a satellite communication system* by E. Lloyd Sommerlad. Paris, Unesco, 1974. 7 p. (processed).

Statement in which the author speaks first about satellite system planning in terms of general principle and not specifically about the Indonesian satellite proposals. Then he deals inter alia with the following: I. Terms are defined and description of the different types of satellites which may be used in a communication system is given; II. Problems faced by the Post and Telegraph authorities, on the one hand, and the educational and broadcasting authorities on the other, when considering the design of a satellite system are outlined; III. Emphasis is placed on the word "system"; IV. Few of the key policy questions raised when introducing a satellite broadcast capacity into the education and communication systems are listed.

170 _____. *Statement* by E. Lloyd Sommerlad. Paris, Unesco, 1974, 3 p. (COM/2243/030974) (processed).

Address at opening session, stating that the meeting permits examination in detail of ways to exploit to the full the tremendous potential of satellites in Indonesia; not only in order to provide adequate telecommunications to all centres of population, but also to cover the whole territory with a broadcasting service that will link the remotest village with the capital, that will bring the best of educational television to students and adults in small towns as well as large cities, and will provide equal educational opportunities for all. It also provides opportunity of doing even more than establishing a basis of co-operation for the successful development of a satellite system, important as this is. One of the objectives of the Seminar is to help formulate suggestions for national communication policies and to establish some permanent mechanism for the co-ordination of communication development planning. The broad representation at the Seminar underlines the multidisciplinary nature of communication, which intimately affects many aspects of social, political and economic life.

171 "New vistas for education through artificial satellites". In: *Unesco Chronicle* (Paris), Vol. XII, No. 2, February 1966, pp. 56-60. Also published in Ar., Esp., Fr. $0.20; 1/-stg.; 0.70 F.

In so far as space communication relates to culture and education, in the broadest sense, as well as to development of the mass media of communication and their use for the free flow of information and ideas, Unesco has a clear commitment. The use of space communication by the mass media was the theme of a meeting of experts held at Unesco House in Paris from 6 to 10 December 1965. The participants considered that a long-term programme should include the following aspects: co-operation with other organizations; studies and research; assistance to Member States; international arrangements; meetings of experts.

NIXON, Raymond B.
See under Entry No. 097

172 OUIMET, J. Alphonse. "A personal statement at Unesco General Conference". In: *Asian Broadcasting Union Newsletter* (Sydney) No. 46, January 1969, pp. 5-7.

Personal statement made at the Unesco General Conference held in Paris in November 1968, concerning Unesco's future work and responsibilities in the field of mass communication. As far as satellites are concerned it is pointed out that television services are now regularly using them for international reporting of important events. Within three or four years distribution satellites will be employed for relaying television programmes throughout large countries such as Canada, India and Brazil, probably within 10 years satellites will be available for direct transmissions into homes. But this is only the beginning of the developments which go hand in hand with the rapid growth of knowledge. Other predictions are made in this respect.

173 PAINE, Thomas O. "Space research and a better earth". In: *Impact of Science on Society* (Paris), Vol. XIX, No. 2, 1969, pp. 123-134. Also published in Esp., Fr. $1.00; 6/-stg.; 3.50 F.

While the eyes of the world are excitedly focused on man in space, prosaic satellites, the down-to-earth workhorses of space research, are already contributing toward the enhancement of our ability to understand, manage and improve our earthly home. The head of the National Aeronautics and Space Administration outlines the enormous potential of satellites, linked with powerful computers, in such areas as meteorology, natural resources surveys, world-wide communications, navigation and the control of air and sea traffic, and geographic mapping and geodesy.

PAL, Yash
See under Entries No. 199, 265

PARKER, Edwin B.
See under Entry No. 264

174 PEPIN, Eugène. "Legal aspects of direct broadcasting by satellite". In: *Impact of Science on Society* (Paris), Vol. XXI, No. 3, 1971, pp. 243-251. Also published in Esp., Fr. $1.25; 40 p.(stg.); 5 F.

The direct broadcasting of television programmes from satellites to homes, depends on two basic principles: The free and equal access of all nations to the satellite channels, and the free right of all people to information. Yet what will happen if, in abuse of these "freedoms", directly broadcast programmes, transcending national borders, are used for propaganda, or for advertising - with different standards in different countries - or to infringe in

some way on national sovereignty? A single general legal text on direct broadcasting covering the various problems in international law that this technology raises is needed.

175 **PEPIN, Eugène.** "Space flight and the rule of law". In: *The Unesco Courier* (Paris), May 1966, pp. 17-18 and 35-37.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/6-stg.; 30 cents; 1 F.

What happens if a spaceship launched by one country lands in another? - Can any nation claim sovereignty on the moon? - What are the responsibilities of a country whose satellite collides with a communication satellite placed in orbit by another country? - As the science of astronautics achieves new successes in the conquest of space, fresh legal problems will arise, in addition to those already met, calling for solution by wide international co-operation.

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See also under Entry No. 048

PERRATON, H.D.
See under Entry No. 067

PERSIN, J.
See under Entry No. 140

PETERSON, Allen M.
See under Entry No. 125

PETERSON, J.H.
See under Entry No. 155

176 **PETROVITCH, G.V.** "Spaceships on satellite orbits round the earth". In: *Impact of science on society* (Paris), Vol. XI, No. 2, 1961, pp. 96-106.
Also published in Esp., Fr. $0.50; 2/6-stg.; 1.25 F.

Description of the latest Russian space activities, the successes achieved, the data yielded by a large number of interplanetary flights and, in particular, the research carried out on the problem of sending a man into space and bringing him back to earth. Outlines the various methods used to check and improve the quality of the scientific data yielded by the latest satellites.

177 **PHELIZON, Georges.** "Communications on the moon; a major problem for lunar explorer". In: *The Unesco Courier* (Paris), March 1969, pp. 26-31.
Also published in Ar., Dt., Esp., Fr., Heb., Hind., It., Jap., Rus., Tam. 2/- stg; 40 cents; 1.20 F.

Radio communication on the moon will be a serious problem with the lack of atmosphere and ionosphere. How can science solve this? - How will radio communication be established between the hidden face of the moon and the earth? - How will research stations established on the moon communicate with each other? Important factors point to satellites as the best solution.

178 PICKERING, William H. "New ways to explore the planets". In: *The Unesco Courier* (Paris), October 1966, pp. 20-24.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/6-stg.; 30 cents; 1 F.

Unmanned spacecraft travelling to the planets have demonstrated that complex experiments can be operated successfully at planetary distance, and that these craft can obtain much important information and permit close-up observations of the planets with television and other instruments. Eventually such craft may convey data from instruments landed on a planet. Exploration of the solar system has entered a new era with the planetary radar experiments from the earth and spacecraft experiments at other planets.

PIERCE, W.B.
See under Entry No. 274

179 "Planning the international use of space communication". In: *Unesco Chronicle* (Paris), Vol. XV, No.11, November 1969, pp. 377-381.
Also published in Ar., Esp., Fr. $0.30; 2/-stg.; 1 F.

Issued also as an offprint.

This article outlines the scope of the Organization's competence in space communication and defines the main principles and guidelines of its action, as presented by Tor Gjesdal, Assistant Director-General of Unesco for Communication, to the Working Group on Direct Broadcasting Satellites convened in Geneva by the United Nations Committee on the Peaceful Uses of Outer Space. (Annex: Bibliographical notes).

180 PLOMAN, Edward. *A guide to satellite communication.* Paris, Unesco, 1972. 35 p. incl. Annex. (Reports and Papers on Mass Communications, No. 66).
Also published in Fr. $1; 30 p. (stg.); 4 F.

Booklet describing in non-technical terms the characteristics, uses and approximate costs of communication satellites. The wide implications of the use of satellites for public service and educational broadcasting are emphasized in this publication which is presented under the following headings: I. Description of communication satellites (background - development of communication satellite systems - characteristics of satellite communication systems); II. Applications of communication satellites (satellite communication systems, existing and planned - patterns and purposes of use - categories of services and users - remarks on costs - alternatives); III. Implications of communication satellites (implications for information, education and culture - legal implications and applicable international law - institutional framework, organization and planning). (Annex: Selected bibliography).

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See also under Entries No. 248, 268, 271, 272, 274

181 "Promotion of the use of space communication to further Unesco's aims". In: *Report of the special committee [of the Executive Board] on its study of the Director-General's report on the activities of the Organization.* Paris, Unesco, 1970. pp. 18-21. (Unesco 84 EX/4).
Also published in Esp., Fr., Rus.

Approval expressed for the way in which the space communication programme had been conceived and executed. Wide-ranging discussion which could be divided in three themes: I. The important contribution that had been made by missions Unesco had sent to India, Pakistan, Brazil and a number of countries in South America; II. The uses to be made of space communication for the free flow of

information, the rapid spread of education and greater cultural exchange; III. The effort to establish international agreements in the space communication field.

RAINSBERRY, Frederik B.
See under Entry No. 273

RAO, K.R.
See under Entry No. 251

RAY, Ivor
See under Entry No. 143

182 *The Records of the General Conference. Resolutions.* 13th session- Paris, Unesco, 1964-
Also published in Ar., Esp., Fr., Rus.

The text of the resolutions, as adopted by the General Conference, concerning space communication within Unesco's field of competence appears, under the Chapters "Promotion of the use of space communication to further Unesco aims" and "Development and application of communication systems" in: 13 C/Resolution 4.2123; 14 C/Resolution 4.14; 15 C/Resolution 4.13; 16 C/Resolution 4.13; 17 C/Resolution 4.11; 18 C/Resolution 4.121; 19 C/Resolution 4.15.

REMBE, Rolf
See under Entry No. 027

183 *Report on the desirability of modifying existing conventions or preparing a new international instrument on the protection of television signals transmitted by communication satellites.* Item 29 of the Provisional Agenda. Paris, Unesco, 1972. 4 p. (17 C/24 and Corr.)
Also published in Esp., Fr., Rus.

The purpose of this document is to report (under the following subtitles: Committee of Governmental Experts, Lausanne, April 1971 - Second Committee of Governmental Experts, Paris, May 1972 - Follow-up to the work of the Second Committee of Governmental Experts) to the General Conference on the result of the work of the committees of governmental experts on problems raised in the field of copyright and the protection of performers, producers of phonograms and broadcasting organizations by transmission via space satellites, and to submit to it proposals for appropriate action.

184 *Report of the Director-General on the activities of the organization communicated to Member States and the Executive Board in accordance with Article VI.3b of the Constitution.* Paris, Unesco, 1963 and 1964- (20 C/3 - 1975-1976 - latest edition).
Also published in Esp., Fr., Rus.

Unesco's activities in the field of space communication are outlined in these reports under the Chapters "Communication" and "Culture and Communication".

185 *Report by the Director-General on the work of the Committee of Governmental Experts on Problems in the Field of Copyright and of the Protection of Performers, Producers of Phonograms and Broadcasting Organizations Raised by Transmission Via Space Satellites.* Paris, Unesco, 1971. /57 p. incl. Annex/. (88 EX/13 and Corr.).
Also published in Esp., Fr., Rus.

The purpose of this document is to report to the Executive Board on the results reached by the Committee of Governmental Experts on Problems in the Field of Copyright and of the Protection of Performers, Producers of Phonograms

and Broadcasting Organizations Raised by Transmission Via Space Satellites, and to submit to the Board proposals for follow-up action to be taken in this connection. In particular, the Director-General submits to the Executive Board, in accordance with Article 21 of the Regulations for the general classification of the various categories of meetings convened by Unesco, proposals concerning invitations to a new Committee of Governmental Experts, the convening of which is proposed in the present document. (Annex: Document UNESCO/WIPO/SAT/22).

186 *Report of the Director-General on the work of the Third Committee of Governmental Experts on the Problems in the Field of Copyright and of the Protection of Performers, Producers of Phonograms and Broadcasting Organizations Raised by Transmission Via Space Satellites.* Paris, Unesco, 1973. /23 p. incl. Annexes/. (93 EX/23 and Add. and Corr.).
Also published in Esp., Fr. Rus.

This document is in two parts. Part I consists of a report to the Executive Board on the results of the work of the above-mentioned Committee which was held in Nairobi from 2 to 11 July 1973. In Part II, the Director-General submits to the Executive Board his proposals concerning the convening of an international conference of States to draw up and adopt an international convention relating to the distribution of programme-carrying signals transmitted by satellite. (Annex I: Draft text of the proposed Convention adopted by the Committee on July, 1973. Annex II: Draft provisional agenda of the International Conference of States on the Distribution of Programme-carrying Signals Transmitted by Satellite. Annex III: Draft provisional rules of procedure. Annex IV: Letter addressed to the Director-General of Unesco concerning preparations for a diplomatic conference on the protection of programme-carrying television signals transmitted by satellites).

ROBINSON, M.W.
See under Entry No. 116

ROSETTI, C.
See under Entry No. 260

SANFRIDSSON, A.
See under Entry No. 065

187 "Satellite communication for India". In: *Unesco Chronicle* (Paris), Vol. XIV, No. 6, June 1968, pp. 255-256.
Also published in Ar., Esp., Fr. $0.30; 2/-stg.; 1 F.

Article concerning a report on the prospects for satellite communication in India, examined at the 78th session of the Executive Board of Unesco and based on the findings of a recent five-men expert mission sent by Unesco at the request of the Indian Government to assess the educational potentialities of a television system based on satellite communication. An experimental satellite communication Earth Station at Ahmedabad could serve as a preparatory and training centre for satellite broadcasting. Cost estimates are given (List of participants enclosed).

188 "Satellites to serve world communications needs". In: *Unesco Chronicle* (Paris), Vol. XVI, No. 2, February 1970, pp. 53-59.
Also published in Ar., Esp., Fr. $0.30; 2/-stg.; 1 F.

Reference is made to the Meeting of Governmental Experts held at Unesco House in December 1969 to examine arrangements to ensure the fullest possible use of space communication for education, science, culture and information. From the extremely diverse suggestions put forward, there emerged a certain number of common premises and directives. The first of these premises is a

general recognition of the great potentialities of satellite-based television to promote the free flow of information, the spread of education and greater cultural exchange. The experts defined some issues which should be explored more fully, e.g. Unesco should carry out studies and research on the various aspects of space communication within its competence; Unesco should continue to assist Member States, upon request, in providing expert assistance on the use of satellite communication for education and national development. Another suggestion was that Unesco should organize international seminars and advanced training courses for personnel needed in the use of satellite communication. Finally, Unesco should also continue to work in closest co-operation with other organizations concerned.

SCHIRRA, Walter M.
See under Entry No. 060

189 SCHRAMM, Wilbur. *Communication satellites for education, science and culture.* Paris, Unesco, 1968. 23 p. (Reports and Papers on Mass Communication, No. 53).
Also published in Fr. $1; 6/-stg.; 3.50 F.

Paper focusing on the problems of bringing satellite systems into use to serve objectives like education, science and culture where the economic utility is not always so apparent and where special effort will be required to realize the potential of the new technology. Suggestions concerning the direction those efforts might take are given.

190 _____. "The new music of the spheres". In: *The Unesco Courier* (Paris), February 1968, pp. 24-29.
Also published in Ar., Dt., Esp., Fr., Hind., It., Jap., Rus., Tam. 2/-stg.; 40 cents; 1.20 F.

With the latest advances in technology it is foreseen that in the next 10 years our TV screens will be able to receive world-wide programmes via satellite relays. The real problem today is not so much the need for more perfected satellites as better plans for using them for a vast exchange of educational, scientific and cultural programmes. The author here looks at a few of the major problems that call for solution before the intercontinental exchange of news and cultural programmes can become a day-to-day occurrence.

191 _____. "What communication satellites mean to the developing countries". In: *Mass media and national development;* the role of information in the developing countries. Appendix C. Stanford, Calif., Stanford University Press; Paris, Unesco, 1964. pp. 293-296.
Also published in Fr. $6; 30/-stg.; 21 F.

The contents of this chapter are intended to try to make clear just how communication satellites may enter into national development. They are described as being either synchronous or non-synchronous and as having high or low power. The first use of these new instruments which is likely to be important to developing countries is an expansion of facilities for telecommunication. Telstar and its immediate successors offer a chance to use more circuits for telephone, telegraph, radio, facsimile pictures and television.

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See also under Entries No. 125, 138, 210.

SECOND COMMITTEE OF GOVERNMENTAL EXPERTS ON PROBLEMS IN THE FIELD OF COPYRIGHT AND OF THE PROTECTION OF PERFORMERS, PRODUCERS OF PHONOGRAMS AND BROADCASTING ORGANIZATIONS RAISED BY TRANSMISSION VIA SPACE SATELLITES
See under Entries No. 030-036

192 *Selected bibliography on the utilization of satellites for educational purposes.* Paris, Unesco, 1976. 36 p. (ED-76/WS/55).

Study carried out by the International Extension College, Cambridge, U.K. on behalf of Unesco. The introduction of this document offers a brief guide into the literature of the subject. Data is given on the use of satellites for broadcasting; other educational uses of satellites and the problems involved (ground organization; software questions; political and economic questions). Under the heading "Selective bibliography on the applications of satellite communications for educational purposes 1967-1973" a list of six bibliographies is given and the abstracts are classified under the following subdivisions: I. General; II. Regions (Africa, Arab States, North America, Latin and South America, Pacific, Australia and S.E. Asia, India and Pakistan, Iran, Europe).

193 *Selective list of studies and reports on communication satellite projects.* Paris, Unesco, 1973. 49 p. (COM/WS/349).
Some texts in Esp., Fr.

List of studies and reports on communication satellite projects for identified countries or regions and for certain specific uses. No attempt has been made to include in it the many studies dealing with the subject in broad terms or examining the application of space communication technology to developing countries in general. Most of the information given - generally in the original language - is derived from publications assembled for reference in Unesco's Mass Communication Documentation Centre. This list is arranged in alphabetical order of authors, the authors being in most cases international or national organizations, universities or institutes and commercial firms. Indexes to: (a) Titles; (b) Regions and countries studied are appended.

194 SEMINAR ON REGIONAL CO-OPERATION FOR EDUCATION AND DEVELOPMENT IN AFRICA USING SPACE COMMUNICATION, Addis Ababa, September-October 1976. *Report.* Paris, Unesco, 1976. /16 p. incl. Annex/. (COM-76/CONF.712/9).
Also published in Fr.

Report containing a summary of the papers and discussions at the Seminar on Regional Co-operation for Education and Development in Africa using Space Communication, organized in collaboration with the Economic Commission for Africa, the Organization for African Unity and the International Telecommunication Union. It includes observations and conclusions of the participants and recommendations for further action. The programme of the Seminar covered the following topics: I. An overview of communication and broadcasting satellite systems, experiments and plans throughout the world; II. Description and discussion of satellite experiments and plans in Africa (Algeria, Nigeria, Cameroons, Ivory Coast) and of the proposed Arab States network; III. Description and discussion of the satellite project in India; IV. Design options and costs for multi-purpose satellite systems for Africa; V. Contributions of satellite-based delivery systems to the solution of national and transnational problems in education in Africa; VI. Satellites in the context of overall communication planning; VII. Possible use of satellite technology for education and development in Africa and the need for regional co-operation (Annex: List of participants).

195 SEMINAR ON REGIONAL CO-OPERATION FOR EDUCATION AND DEVELOPMENT IN AFRICA USING SPACE COMMUNICATION, Addis Ababa, September-October 1976. *Communication satellites - A review of present systems and broadcasting applications.* Paris, Unesco, 1976. 12 p. (COM-76/CONF.712/2) Also published in Fr.

Background paper compiled by the Unesco Secretariat from various published sources and intended to provide a general review of the communication satellite systems now operating or planned. It is presented under the following headings: I. Communication satellites; II. INTELSAT System; III. Orbita System and Inter-Sputnik; IV. Canada, United States; V. Broadcasting satellites; VI. The ATS(6) experiments; VII. Other planned systems and experiments (Arab States, Brazil, Canada/U.S./C.T.S. experiment, Europe, "Symphonie", Indonesia, Iran, Japan, Peacesat); VIII. Regional co-operation; IX. Assessment of frequency requirements.

196 _____. *Design options and costs for multipurpose satellite systems for Africa* by A.G.W. Timmers. Paris, Unesco, 1976. /21 p. incl. Annex/ (processed). Also published in Fr.

This paper in its first part takes a general look at the international requirements and concludes that with the implementation of the PANAFTEL network and the increasing membership of INTELSAT the international needs are now rapidly being satisfied. African satellite systems could supplement the Intelsat system for the exchange of television or to avoid double satellite-hop connections. For domestic applications the satellite technology is particularly valuable in African countries since it can combine broadcasting with voice and message traffic. Thus it can provide a greater fulfilment of the country's needs not only in terms of basic communications, but also in terms of educational and social development. Satellite systems can fill in the gaps in those areas that can not be covered with a national network and its rebroadcasting stations for perhaps another 20 years. It can provide community television reception in areas that do not yet have electric power. In the second part of this paper the domestic requirements point the way towards multinational satellites with spotbeams and individual transponders for the participating countries.

197 _____. *Satellite communication for social development* by J. Bystrom. Paris, Unesco, 1976. 6 p. (COM-76/CONF.712/6).

Paper outlining the Pan-Pacific Education and Communication Experiments by Satellite (PEACESAT), an international educational experiment in which institutions in 12 nations of the Pacific Basin are linked by satellite for information sharing. Specialists and community leaders and other people, with responsibility for social welfare problems, can be linked with colleagues and information banks. In the author's opinion, after some four years of experience, a world-wide system using the Peacesat approach is feasible - technically, economically, politically and functionally. It could help to extend the benefits of science and education and gain great returns from the enormous investments in trained manpower and in organized efforts to improve man's conditions. The paper is presented under the following headings: Telecommunication Systems - a comparison; Network users; The future of Peacesat.

198 SEMINAR ON REGIONAL CO-OPERATION FOR EDUCATION AND DEVELOPMENT IN AFRICA USING SPACE COMMUNICATION, Addis Ababa, September-October 1976. *Satellites in the context of communication policies and planning* by E. Lloyd Sommerlad. Paris, Unesco, 1976, 4 p. (COM-76/CONF.712/3). Also published in Fr.

Address in which the author comes to the conclusion that it is useful to look at satellite technology - what it can do, how it can be applied, to understand its technical possibilities, its economic advantages and constraints. But before decisions are made, it is desirable to adopt a systems approach to communication planning - study the needs, objectives and resources; assess the costs; examine the alternatives - and if a satellite system fits into an integrated communication plan, then design it accordingly.

199 _____. *Some lessons during the setting up of SITE* by Yash Pal. Paris, Unesco, 1976. 10 p. incl. Map. (COM-76/CONF.712/7).

Paper giving details on SITE and stating that nobody engaged in this experiment views it as an operational system nor believes that one year's experiment will bring about large measurable social changes in the country. However it is believed that through this experiment we will be able to learn how an ongoing system ought to be configured, installed and managed, and what are the necessary conditions for the programmes to be effective. It is planned to have a thorough evaluation of the technical, managerial and social aspects of the experiment for which dedicated teams of experts are already working. Some of the experiences while setting up this experiment are recounted.

200 SISSAKIAN, N.M. "On the way to inhabited space". In: *Impact of science on society* (Paris), Vol. XV, No. 3, 1965, pp. 135-147. Also published in Esp., Fr. $0.75; 4/-stg.; 3 F.

The author refers to some of the amazing achievements of science that mankind has witnessed in the course of one generation and goes on to a few examples of what humanity can expect from the development of the astronautical sciences. He reviews the numerous demands that will be made upon science by the study and the conquest of outer space. Among the prospects that will be opened up by the conquest of the cosmos, he predicts that the development of astronautics will not only bring the planets closer together but will also reinforce friendship among peoples.

SMITH, Daniel C.
See under Entry No. 210

201 SMITH, Delbert D. *Satellite applications for education, culture and development*. Paris, Unesco, 1973. 96 p. (COM/WS.333).

This document considers the potentialities of space communication for education, national development and cultural exchange, and discusses the cultural and social aspects of developing communication satellite systems. Section I of this work deals with communication satellite system alternatives, drawing distinctions between communication broadcasting and direct broadcast satellite systems. Section II considers the basic alternatives in educational and national development satellite programme content areas. Section III discusses the complementary software that is available for communication satellite systems (cost estimates are given for the various system configurations). Section IV discusses current and planned communication satellite experiments (Indian, Brazilian, Rocky Mountains' experiments, Canadian projects, etc.). Section V outlines the educational, co-operative and cultural exchange aspects of satellite broadcasting and develops a model for their application. Section VI discusses the intercultural implications of satellite communication.

202 **SOMMERLAD, E. Lloyd.** "Broadcasting satellites". In: *National communication systems. Some policy issues and options.* Paris, Unesco, 1975. pp. 17-18. (Reports and Papers on Mass Communications No. 74). Also published in Fr.

Section dealing with satellites capable of broadcasting directly to community television receivers. A broadcasting satellite is part of a radio/television delivery system and not a new medium in itself. It is such a major undertaking however that it raises many problems for communication, educational and cultural policy-makers and planners. Reference is made to the following: I. Planning and co-ordination; II. Technical design and capacity of the system; III. Some of the policy questions to be considered before deciding on a satellite system for education and development purposes; IV. Questions raised in a regional system; V. Agreements about power and frequencies to avoid mutual interference; VI. Implications of political interference and cultural imperialism, etc.

203 _____. *The miracle age of space satellites.* Paris, Unesco, 1972. 9 p. (processed).

Revised address given at a Unesco round table held in November 1970. It deals with the following: I. *Scientific satellites*; II. *Application satellites* (meteorology - navigation satellites "aeronautical and maritime" - earth resource satellites - communication satellites (elliptical and synchronous) - Intelsat and Inter-sputnik systems); III. *Unesco's programme in space communication* (Studies and research on the use and impact of space communication and the dissemination of information of use to Member States and professional organizations - International arrangements, including the drafting of a Declaration of guiding principles on the use of space broadcasting for the free flow of information, the spread of education and greater cultural exchange - Assistance to Member States "missions to India, Pakistan, Brazil, South America and the Arab States and a survey in Africa").

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See also under Entries No. 012, 053, 061, 070, 079, 084, 085, 086, 089, 169, 170, 198, 218, 220, 223, 224, 229, 231, 240, 241, 245, 256, 262

204 **SOMMERLAD, E. Lloyd et al.** *The Unesco conference satellite experiment.* Paris, Unesco, 1977. 66 p. incl. Annexes, Tables. Also published in Fr. (CC.77/WS/42)

Report on the experimental use of the satellite Symphonie to link Unesco Headquarters in Paris with the Conference Centre in Nairobi during the nineteenth session of the General Conference (1976). It is presented under the following headings: I. Objectives and facilities; II. Organizational arrangements, Analysis of communication flows; IV. Qualitative evaluation of experiments; V. Opinion survey of Unesco staff; VI. Telecommunications and international conferences, Future possibilities - and the following conclusions are drawn by the authors: I. The utility of direct large-scale telecommunications for remote conferencing has been convincingly demonstrated. There must always be a nucleus of staff at the Conference centre and there is no substitute for the personal contacts, the corridor exchanges and the informal negotiations which are essential features of all big conferences; II. Telecommunications can greatly improve the efficiency of such meetings if distant from the organization's headquarters and separated from a large part of its normal intellectual and logistic resources; III. It is possible that by substituting telecommunications for travel, economies may also be made in the cost of conference services; IV. The utility of the system should be judged on criteria of efficiency rather than economy; V. Telecommunications will play an increasingly important role in international meetings, and within a decade, the type of services provided during the Nairobi experiment will be the norm rather than the exception. (Annex I: Technical aspects of the experimental 2 MBIT/s Paris - Nairobi link; Annex II: The telecommunication system via the Symphonie satellite.)

SOUZA LIMA DE MACEDO, Luiz Antoñio
See under Entry No. 261

SOWTON, Charles W.
See under Entry No. 254

205 "Space communication". In: *Unesco Chronicle* (Paris), Vol. XV, No. 9, September 1969, pp. 312-313.
Also published in Ar., Esp., Fr. 30 cents; 2/-stg.; 1 F.

This article shows that Unesco has long been concerned that communication - and particularly space communication - be utilized to promote the free flow of information, the rapid spread of education and greater cultural exchange. It also announces the convening of an intergovernmental meeting of experts on international arrangements in the field of space communications (2-9 December 1969) for discussing the increasingly acute need to plan the utilization of this new means of communication for the benefit of all States and preparing a draft declaration embodying principles for the use of space communication.

206 "Space communication". In: *Unesco Chronicle* (Paris), Vol. XVII, No. 7, July 1971, p. 288.
Also published in Ar., Esp., Fr. $0.30; 10 p.; 1.20 F.

Article referring to the following: I. The members of the Unesco Panel of Consultants on Space Communication appointed by the Director-General for the period 1971-1972 (a meeting is to be held at Unesco Headquarters in November and during the 1971-1972 period, task forces of specialists, both panel members and others, will be called upon to advise on specific issues); II. The publication of an annotated bibliography entitled "Unesco publications and documents dealing with space communication".

207 "Space communication for broadcasting". In: *Unesco Chronicle* (Paris), Vol. XIV, No. 3, March 1968, pp. 117-119.
Also published in Ar., Esp., Fr. 30 cents; 2/-stg.; 1 F.

Article mentioning: I. A meeting of experts on the use of space communication for broadcasting convened by Unesco at its Headquarters (24-26 January 1968) and dealing particularly with the possibilities offered by space communication for assuring the freer transmission of news and reportage, the acceleration of education and the dissemination of culture; II. Studies on space communication appearing in the Unesco publication "Communication in the space age: the use of satellites by the mass media".

208 "/Space communication/ - Draft Programme and Budget for 1973-1974". In: *Unesco Chronicle* (Paris), Vol. XVIII, No. 7, July 1972, p. 290.
Also published in Ar., Esp., Fr. $0.30; 10 p.; 1.20 F.

Article referring to the following: I. An advisory panel of consultants to assist the Secretariat in the planning and execution of the programme on the use of space communication for the free flow of information, the spread of education and greater cultural exchange will be continued; II. In cooperation with the United Nations, the International Telecommunication Union and appropriate non-governmental organizations, studies will be made on the use of space communication for the development of information, education, science and culture; III. Documentation and research findings will be collected and disseminated; IV. A report on the educational, cultural and social implications of space communication will be submitted to the United Nations; V. International arrangements and measures to promote regional cooperation in the use of space broadcasting will be encouraged; VI. Member States will receive advisory services and assistance on the use of space communication.

209 "Space communication and Unesco objectives". In: *Unesco Chronicle* (Paris), Vol. X, No. 1, January 1964, pp. 21-22.
Also published in Esp., Fr. 20 cents; 1/- stg.; 0.50 F.

Approval in November 1963 of an international agreement on the use of radio frequencies for space communication by a seventy-nation conference convened by the International Telecommunication Union in Geneva. The new provisions, which enter into force in January 1965, increase from 1 to 15 per cent the amount of radio spectrum space available for space communication generally. Mention of a report presented to the Conference by the Director-General of Unesco which assessed the long-term opportunities which this new technological device presents for the free flow of information, the spread of education and greater cultural exchange.

SPAIN, Peter
See under Entry No. 210

210 **STANFORD UNIVERSITY.** *A direct broadcast satellite for education and development in Africa?* Stanford, Stanford University, 1972. 147 p. incl. Tables, Appendices and Bibliographies.

A briefing document for Unesco, by a group of students and professors in the Institute for Communication Research, prepared for the guidance of a field team which will study the feasibility of a possible direct broadcasting satellite for sub-Sahara Africa. The obstacles to introducing sophisticated electronic technology such as a direct broadcasting satellite into sub-Sahara are not basically technological. The technology is available or can be made available by the time Africa is ready to use it. The problems lie in the areas of policy, economics, and human resources. The following articles appear in this publication: People and languages by Peter Spain - Political realities by Rae Goodell with the assistance of Peter Spain - Economic realities by Peter Spain - Education by Osvaldo Kreimer with the assistance of Peter Spain - The effectiveness of instructional media by Wilbur Schramm - Direct broadcast satellite by Daniel C. Smith and James M. Janky.

211 **STANIUKOVICH, K.** "A Soviet scientist looks at 'Sputnik'". In: *The Unesco Courier* (Paris), November 1957, pp. 20-21.
Also published in Esp., Fr., Rus. 1/-stg.; 30 cents; 0.50 F.

The event of 4 October 1957, is important for several reasons: first, proof has now been furnished of the possibility of launching a satellite into a relatively stable orbit; second, men the world over can proudly observe that an object now exists whose movements do not seem to be governed by the force of gravity in the sense that this body will not fall to earth for a very long period and that its fall will occur only as result of resistance to the medium in which it is moving.

STEWART, Stephen M.
See under Entry No. 028

STRASCHNOV, Georges
See under Entries No. 026, 137, 150

212 *Study of the feasibility of launching a pilot project on the use of satellite communication for education and economic development.* Report by the Director-General. Item 4.5.1 of the Provisional Agenda. Paris, Unesco, 1968. 6 p. (78 EX/7)
Also published in Esp., Fr., Rus.

Report submitted to the 78th session of the Executive Board (pursuant to resolution 4.13 (c) adopted by the General Conference at its fourteenth session) concerning the mission of experts sent to India in order to examine the technical requirements, the cost factor and the educational programming aspects of a possible pilot project in India. Conclusions and recommendations of the expert mission, including a tentative timetable for the implementation of the project are given.

TABANERA, Teófilo M.
See under Entry No. 255

213 TCHISTIAKOV, Nicolaï I. "Hurdles in space broadcasting". In: *The Unesco Courier* (Paris), November 1966, pp. 30-32.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/6-stg.; 30 cents; 1 F.

The successful experiments with communication satellites by the U.S.A. and the USSR show that they have an important role to play in the development of broadcasting. Advantages of the synchronous satellites and of the high elliptical orbits are given. The author thinks that satellite communication systems must be designed with limitation on their range and the duration of their use, with relation to the availability of other systems, and to economic advantage.

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See also under Entry No. 123

TERROU, F.
See under Entry No. 128

THANT
See under Entry No. 127

THIRD COMMITTEE OF GOVERNMENTAL EXPERTS ON PROBLEMS IN THE FIELD OF COPYRIGHT AND OF THE PROTECTION OF PERFORMERS, PRODUCERS OF PHONOGRAMS AND BROADCASTING ORGANIZATIONS RAISED BY TRANSMISSION VIA SPACE SATELLITES
See under Entries No. 037-043

TIMMERS, A.G.W.
See under Entry No. 196

214 "Today's trends in world communication; a special Unesco report". In: *The Unesco Courier* (Paris), February 1964, pp. 4-11.
Also published in Ar., Dt., Esp., Fr., It., Jap., Rus. 1/-stg.; 30 cents; 0.70 F.

This global report on press, radio, films and TV shows that though information media are outpacing population growth, they are still very unequally shared, 70% of the world lacking adequate facilities. Such a situation will certainly be ameliorated after spectacular developments such as the one in television with the first communications satellite pointing to the coming of world television.

215 TORFS, Jacques. *Implication de l'usage des satellites pour une éducation nouvelle.* Conférence prononcée à Abidjan le 9 mai 1972. Paris, Unesco, 1972. 4 p.
Also published in Fr. (processed).

The satellite system as a means of improving educational provision as exemplified concretely in the proposed South American system. Possibilities of setting up a similar system for Africa or more precisely for a region of the African continent where the socio-cultural structure seems in principle sufficiently homogeneous: the 27 countries south of the Sahara. In particular, financial, cultural and political aspects are examined and the speaker concludes with the belief that a satellite system could offer real advantages in Africa. The adoption of such a system, however, would have vast implications, involving a co-ordinated reorientation of education systems, accelerated technical integration and regional collaboration at least in cultural affairs.

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See also under Entries No. 068, 266, 274

UNION OF NATIONAL RADIO AND TELEVISION ORGANIZATIONS OF AFRICA (URTNA)

See under Entries No. 107, 111

216 UNITED NATIONS. Committee on the Peaceful Uses of Outer Space. *Draft Declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange.* Note by the Secretariat. New York, United Nations, 1972. 8 p. (A/AC.105/104).
Also published in Esp., Fr., Rus.

Pursuant to a decision of the sixteenth session of the General Conference of the United Nations Educational, Scientific and Cultural Organization (16 C/Resolution 4.132 (b)) this report, which has been prepared for submission to the seventeenth session of the General Conference as Unesco document 17 C/76, has been submitted by Unesco for information and comment by the United Nations. Part I of the report sets forth the background of the preparation of a Draft Declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange; Part II contains the text of the Draft Declaration submitted to the General Conference for adoption.

217 _____. *Space activities and resources. A review of the activities and resources of the United Nations, of its Specialized Agencies and of other competent international bodies relating to the peaceful uses of outer space.* New York, United Nations, 1960-
Also published in Esp., Fr., Rus.

Reports on Unesco's activities in the field of space communication are included in these documents, the most recent issue of which in this series is: A/AC.105/100 and Add. 1-4 (Addendum 4 appeared in March 1976). They provide information on the following: Organizational responsibility for space communication programme - Current activities - Co-operation with other organizations - Publications and documentation - Exchange of information - International scientific programmes - Future activities, etc.

218 **UNITED NATIONS.** Committee on the Peaceful Uses of Outer Space. New York, *15th session*, 1972. *Statement* by E. Lloyd Sommerlad. Paris, Unesco, 1972. 3 p. (processed).

Statement by the Observer from Unesco on the following: I. Future collaboration with the successor to the United Nations expert in space application; II. Unesco's inclusion in its Draft Programme and Budget for 1973-1974 of a provision for two regional meetings (one in Africa and one in Asia to be held in conjunction with the United Nations); III. Possibility of Unesco reporting to the Working Group on Direct Broadcast Satellites on surveys and studies recently undertaken; IV. The Draft Declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange is brought to the attention of the Committee for comment.

219 _____. *Unesco Declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange.* New York, United Nations, 1973. 5 p. (A/AC.105/109 and Corr. 1).
Also published in Ar., Esp., Fr., Rus.

Reproduction of a letter sent by the Director-General of Unesco to the Secretary-General of the United Nations, enclosing the text of the Declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange, as adopted by the General Conference of Unesco at its seventeenth session in 1972.

220 _____. Legal Sub-Committee, Geneva. *13th session*, 1974. *Statement* by E. Lloyd Sommerlad. Paris, Unesco, 1974. 5 p. (COM/1363/1505).

After outlining Unesco's past activities in the field of space communication the speaker concludes in referring to one other of the implications of space communication which might be of interest to this legal sub-committee; that is the problem of copyright and the protection of satellite broadcasts from piracy. These are issues which Unesco and the World Intellectual Property Organization have had under study for some years. All the problems involved are by no means solved but progress has been made and, at this very time, an International Conference of States is taking place at Brussels, with a view to adopting a Convention on the distribution of programme-carrying signals transmitted by satellite. The Convention is intended to deal with the problem of television relays through the Intelsat or Inter-sputnik systems, which are picked up by the large earth stations linked to the system. The Convention relates to the problem of re-transmission of programmes by national authorities and is unrelated to the issue of direct satellite broadcasts over frontiers, which is being examined here by this Sub-Committee.

221 _____. Scientific and Technical Sub-Committee. New York. *9th session*, 1972. Item 4 (a) (2) of the provisional agenda. *Communication satellites: Satellite broadcasting for education and training.* Report by the United Nations Educational, Scientific and Cultural Organization. New York, United Nations, 1972. 7 p. (A/AC.105/C.1/L.45).
Also published in Esp., Fr., Rus.

Report presented by Unesco, dealing with the following: I. Research and studies (mention of the publication "A Guide to Satellite Communication" and of the studies concerning (a) the use of space communication for education, national development and cultural exchange, (b) the social and cultural impact of satellite-based television); II. Assistance to Member States in the field of space applications for education, information, culture and development (assessment of frequency requirements - Arab States mission - African regional mission); III. Progress report on the South American regional feasibility

study (costs of components of a broadcasting satellite system - standardization of equipment - maintenance of receivers - economics of alternative systems).

222 **UNITED NATIONS.** Committee on the Peaceful Uses of Outer Space. Scientific and Technical Sub-Committee. New York, *9th session*, 1972. *Report by Unesco on Item 2.C of the Agenda A/AC.105/C.1/L.33 - Use of satellite broadcasting for the advancement of education and training.* New York, United Nations, 1971. 4 p. (A/AC.105/C.1/L.38).
Also published in Esp., Fr., Rus.

Document outlining I. South American feasibility study expected to be completed about the end of 1972. It will include an analysis of the benefits of alternative systems for education, information and communication, including the use of a satellite, of ground stations linked by microwave networks, of videotape, cassettes and films, or combination of these various distribution methods. The envisaged system would make extensive use of new teaching techniques and media to reach the largest possible school age and adult audience with appropriate educational and information programmes. II. Arab State mission, the report of which came to the conclusion that, to attain the objectives set out in their development plans, the Arab countries required the use of advanced methods and technologies in their systems of communication and education. This would imply the use of television as a national public service available to the entire population of each country in the Arab region, and to achieve this end, satellite communication was one of the promising options.

223 _____. New York. *10th session*, 1973. *Statement* by E. Lloyd Sommerlad. Paris, Unesco, 1973. 7 p. (processed).

Statement made on behalf of the Director-General of Unesco and referring to the following: Unesco's interest in those aspects of the programme in space application relating to communication and broadcasting satellites, and to remote sensing. Unesco's interest: (a) to study the need for a large-scale programme of training, aimed at preparing geographers, soil scientists, agronomists, geologists, hydrologists and water-resources engineers, marine scientists etc. from developing countries, in the interpretation and use of satellite data; (b) to be associated with the training workshop that is proposed as part of the United Nations space applications programme in 1974 - Two seminars to be organized jointly with the United Nations (one in Africa in 1973 and one in Japan in 1974) - Task confronting the United Nations family concerning the assistance which might be given to developing countries (dissemination of information, evaluation of potential benefits, advisory services and preliminary studies, technology transfer) - Attention to be paid to the division of responsibilities implied in this statement - Reorganization within the Unesco Secretariat placing the space communication programme within the new Division of Communication Research and Planning, etc.

224 _____. New York. *13th session*, 1974. *Statement* by E. Lloyd Sommerlad. Paris, Unesco, 1974. 4 p. (processed).

After stating that co-ordination of space application programmes within the United Nations family is essential to avoid duplication and to respect the competence of the various units of the system in their specialized fields, comments are made on the following: I. Report on the assistance extended to developing countries in the field of practical applications of space technology (A/AC.105/124) as requested by the Scientific and Technical Sub-Committee at its last meeting; II. Two successful co-operative seminars on satellite broadcasting systems for education held in Addis Ababa for the African region and Tokyo for the Asian region; III. Future meetings and

seminars for the period 1974-1976 (inter alia the Latin American and Carribean Seminar which should discuss among other subjects the satellite aspects of the major UNDP financed study now being concluded by Unesco and ITU on the feasibility of a regional tele-education system for the Spanish-speaking countries of South America); IV. Remote sensing with regard to education and training (A/AC.105/129) and participation in the Training Seminar on Remote Sensing Applications for Earth Resources Surveys to be held in Canada in 1975; V. Future planning for the United Nations programme on space applications, as set out in the expert report (A/AC.105/126); VI. Note of caution about the establishment of regional training centres.

225 **UNITED NATIONS.** Committee on the Peaceful Uses of Outer Space. Working Group on Direct Broadcast Satellites Sub-Committee. New York, *1st session*, 1969. *Statement* by Tor Gjesdal, Paris, Unesco, 1969. 4 p.

The initiative of the General Assembly in requesting the Committee on the Peaceful Uses of Outer Space to study the technical feasibility of communication by direct broadcasts from satellites, and the current and foreseeable development in this field, reflects the urgency of the problem. The Committee has responded equally to the urgency and complexity of the situation in its decision to set up this Working Group. The statement draws upon various Unesco activities dealing with space communication.

226 _____. Geneva, *2nd session*, 1969. *Direct broadcasting by satellite: The implications for Unesco programme*. Working paper submitted to the second session of the Working Group on Direct Broadcast Satellites by the Unesco Secretariat. New York, United Nations, 1969. [14 p. incl. Annex]. (A/AC.105/60). Also published in Esp., Fr., Rus.

Paper addressing itself to the problem which is to be examined by the Committee concerning "the technical feasibility of communication by direct broadcast from satellites and the current and foreseeable developments in this field, including comparative user costs and other economic considerations, as well as the implications of such developments in the social, cultural, legal and other areas". The paper draws upon various Unesco reports, studies and expert meetings dealing with space communication. The document is a summation of the findings as they relate to the problems being examined by the Working Group. (Annex: Unesco reports on space communication).

227 _____. *Statement* by Tor Gjesdal. Paris, Unesco, 1969. 11 p.

Paper dealing with direct broadcasting via satellite under a number of main headings: first, news transmission; second, education and national development; third, cultural exchange and, finally, the international arrangements that may be required if space communication is to achieve its full potentialities.

228 _____. New York, *3rd session*, 1970. [Unesco report]. In: *Reports of the Working Group on Direct Broadcast Satellites: Comments received from governments, specialized agencies and other competent international bodies.* Chapter II, Specialized Agencies, New York, United Nations, 1970. pp. 13-21. (A/AC.105/79).
Also published in Esp., Fr., Rus.

This report for the third session of the Working Group on Direct Broadcast Satellites of the Committee on the Peaceful Uses of Outer Space by Unesco discusses recent developments in Unesco's space communication programme. A number of suggestions for action were addressed to Unesco by the Working Group

at its previous session (document A/AC.105/66). Unesco's response is summarized under the following headings: I. Content of broadcasts (Education, information and development - Cultural and social standards - Commercial advertising); II. International co-operation (Co-operation with broadcasters and with developing countries); III. International legal questions; IV. Other recommendations of Unesco Expert Meeting (Declaration of guiding principles - Transmission of scientific data - Allocation of frequencies for space communication).

229 **UNITED NATIONS.** Committee on the Peaceful Use of Outer Space. Working Group on Direct Broadcast Satellites Sub-Committee. New York, *3rd session*, 1970. *Statement* by E. Lloyd Sommerlad. Paris, Unesco, 1970. 7 p.

Address to the Working Group Meeting. The main purpose of this statement is to stimulate wide discussion which would enable Unesco to plan and implement its space communication programme and to carry out the proposed surveys and studies so as to give the greatest possible assistance to the United Nations work.

230 _____. New York. *4th session*, 1973. *Report by the United Nations Educational, Scientific and Cultural Organization (Unesco)*. Paris, United Nations, 1973. 12 p. incl. Table. (A/AC.105/WG.3/L.5).
Also published in Esp., Fr., Rus.

This report summarizes the most important Unesco programme activities in the space communication field since the last meeting of the Working Group in May 1970. Throughout the period, Unesco has worked in close co-operation with the United Nations and the International Telecommunication Union and has benefited from the advice of a Panel of Consultants on space communication, representing various disciplines and drawn from all regions of the world. The report appears under the following headings: I. Surveys on regional satellite broadcasting systems; II. Television training in India; III. Co-operation with professional organizations; IV. United Nations panels on space applications; V. Publications and research on satellite applications; VI. Frequencies for satellite broadcasting; VII. International arrangements. (Table: Annual recurrent costs of African satellite system model).

231 _____. *Statement* by E. Lloyd Sommerlad, Representative of Unesco. Paris, Unesco., 1973. [8 p.] (processed).

Statement referring to the activities of major importance described in the Unesco Report A/AC.105/WG.3/L.5 (i.e. expert missions since 1967 - regional missions - feasibility study of a regional tele-education system for the countries of South America - problem of legal protection of broadcast signals transmitted by satellite against unauthorized re-transmission); the Unesco Declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange, adopted by the General Conference in 1972 after giving rise to a long and complex debate during its course. Comment is invited on the text by the United Nations Outer Space Committee since a further report on the subject will be made if necessary to the 1974 Conference, in the light of the decisions of the Committee.

232 UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE, Vienna, Austria, August 1968. "Benefits to be derived from space microbiology". In: *Practical benefits of space exploration;* a digest of papers presented at the Conference.... Chapter VII, Biology and medicine (Non-space applications "c"). New York, United Nations, 1969. p. 53. Also published in Esp., Fr. $1 (or equivalent in other currencies).

Paper prepared for Unesco by Professor C.G. Heden, concerning problems related to cosmic microbiology and the possibility of using the achievements of space biology and medicine for various needs on earth.

233 _____. "International co-operation in solar-terrestrial research". In: *Practical benefits of space exploration;* a digest of papers presented at the Conference.... Chapter X, International co-operation and opportunities for participation in space research. New York, United Nations, 1969. pp. 62-63. Also published in Esp., Fr. $1 (or equivalent in other currencies).

Paper prepared for Unesco by Professor W.J.G. Beynon, Department of Physics, University College of Wales, Aberystwyth in which some references to international co-operation in the field of solar-terrestrial physics (an area of scientific endeavour in which progress is linked to an ever-increasing extent with developments in space vehicles and in space research techniques) are given.

234 _____. *The potentialities of space communication for promoting the free flow of information and greater cultural exchange, and the related international arrangements needed.* [Paris], Unesco, 1968. 15 p. incl. Annex. (A/CONF.34/I.20).
Also published in Fr.

Issued also in: *Space exploration and applications,* Vol. I. Quadrilingual (Eng., Esp., Fr., Rus.).

Unesco Secretariat paper which draws upon a number of other Unesco publications and reports to study the problems of space communication. It deals with the use of satellite communication for education and economic and social development, with the problems posed on the international level (within Unesco's field of competence) by the development of satellite communication. Proposals are formulated for international arrangements designed to ensure the development of space communication in the public interest of all Member States (Annex: Bibliography).

235 _____. *Space vehicles and their use in oceanography.* Paris, Unesco, 1968. 5 p. (IOC/INF.138-AVS/9/89).
Also published in Esp., Fr., Rus.

Document, compiled by Unesco and the Intergovernmental Oceanographic Commission, summarizing possible uses of space vehicles for oceanographic observations. Some details and technical possibilities relevant to these uses are given in the paper entitled "Space Vehicles and their Use in Oceanographic Research" prepared for the IOC by A.G. Alexiou, Spacecraft Oceanography Project, U.S. Naval Oceanographic Office; further remarks on the subject are made by Academician V.A. Bugaev of the USSR Hydrometeorological Service.

236 UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE, Vienna, Austria, August 1968. *Statement* to the Conference.... by Tor Gjesdal. Paris, Unesco, 1968. 9 p. (COM/FF/1934/1208).

Unesco paper dealing with one of the manifold aspects of space communication, namely its potentialities for promoting the free flow of information, the spread of education and greater cultural exchange. The first part of this paper reviews the study carried out in India on the use of satellite communication for education and economic development; the second part deals with the pressing need for international arrangements in the field of space communication because of spectacular advances being made by technology in this field.

237 _____. "Water: The vital essence of life; satellites, hydrology and the International Hydrological Decade". In: *Practical benefits of space exploration;* a digest of papers presented at the Conference.... Chapter VI, Other space techniques of practical benefit (hydrology). New York, United Nations, 1969. pp. 45-46.
Also published in Esp., Fr. $1 (or equivalent in other currencies)

Paper prepared by Unesco with the assistance of Dr. Paul Bock of the U.S.A. with the main purpose of providing relevant information to space specialists concerning satellite possibilities related to hydrology and the International Hydrological Decade.

238 UNITED NATIONS ECONOMIC AND SOCIAL COUNCIL. New York, 1971. *Statement* by Julian Behrstock. Paris, Unesco, 1971. 8 p. (processed).

Mention of a Unesco document E/4958 distributed to the Assembly and which refers to a resolution of the Council, calling for a report on space communication. This report will be postponed until a number of significant pilot projects and studies under preparation are available on the use of space communication for educational purposes which it is wished to take into account in the document for the Council.

239 /UNDP/UNESCO EXPERT MISSION TO/ SOUTH AMERICA /to/ study the feasibility of a regional system of tele-education, 1972-1973. *Final Technical Report.* Paris, Unesco, 1975. /844 p. incl. Annexes/. (UNDP/RLA/71/223 - Serial No. FMR/COM/RPC/75/207 UNDP).
Also published in Esp.

Report prepared for the Governments of Argentina, Bolivia, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela by the United Nations Educational Scientific and Cultural Organization (Unesco) acting as Executing Agency for the United Nations Development Programme (UNDP). The revised Plan of Operations maintained three important principles set out in the original request - the system studied was to be a regional one, it was to be comprehensive providing educational and cultural programmes for both school and out-of-school audiences, and it was to examine the principal means for the transmission of signals, including the use of advanced technologies. The results show that the model is highly efficient for countries like Argentina, Colombia, Uruguay and Venezuela where the population is distributed in well-defined areas with a high density of television sets, but less so for Bolivia and Paraguay where this is not the case. This is a model adapted to the needs of the initial stages of the Tele-education Project which offers an acceptable cost-efficiency ratio and does not interfere with the freedom to choose other communication media in subsequent stages, until an integrated system on a regional level is established as from 1985.

240 **UNITED NATIONS PANEL MEETING ON SATELLITE BROADCASTING SYSTEMS FOR EDUCATION**, Tokyo, February-March 1974. *Outlook for satellite broadcasting systems* by E. Lloyd Sommerlad. Paris, Unesco, 1974. 6 p. (FDC/488/2102).

Statement outlining the prospects for the development of satellite broadcasting systems for information, education and development. Satellite broadcasting should be seen in the broader context of communication policy formulation and communication planning generally. The starting point should be an examination of total communication needs, and then, based on adequate research and study, a long-term integrated plan should be developed which will take full account of the particular characteristics of satellites, along with other alternatives and advanced technologies. In developed countries where the existing communication infrastructure provides near saturation coverage of television for the whole population, a satellite would be useful only to provide supplementary broadcasting services. For developing countries the great significance of space communication in its direct broadcasting phase is its ability to deliver programmes far beyond the range of terrestrial systems which in most cases serve only the major population centres. The most promising option is the development of international co-operative arrangements on a regional or subregional basis - hopefully with compatible systems which could provide for exchange of programmes between regions as may be mutually desired.

241 **UNITED NATIONS PANEL MEETING ON SATELLITE INSTRUCTIONAL TELEVISION SYSTEMS**, New Delhi, December 1972. *Communication satellites - A review of present systems and future broadcasting applications* by E. Lloyd Sommerlad. Paris, Unesco, 1972. 8 p. (processed).

Paper intended to provide a general description of the characteristics and uses of communication and broadcasting satellites and a review of the various satellite systems now operating and planned. It draws particular attention to the potentialities of satellite broadcasting for education and development and to the need for regional co-operation. The document is presented under the following headings: I. Communication satellites; II. INTELSAT System; III. Orbita System and Inter-Sputnik; IV. Canada; V. United States; VI. Broadcasting satellites; VII. The ATS (6) Experiments; VIII. Other Planned Systems and Experiments (Arab States - Brazil - Canada/US/C.T.S. Experiment - Europe - Symphonie - Indonesia - Iran - Japan - PEACESAT); IX. Regional co-operation; X. Assessment of frequency requirements.

242 **UNITED NATIONS/UNESCO AFRICAN REGIONAL SEMINAR ON SATELLITE BROADCASTING SYSTEMS FOR EDUCATION AND DEVELOPMENT**, Addis Ababa, October 1973. *Final report* by Unesco. Paris, Unesco, 1974. /13 p. incl. Annex/. (COM/MD/27).
Also published in Fr.

Issued also by the United Nations under document symbol A/AC.105/120.

The Seminar, which was attended by senior officials from African Member States concerned with policy-making in the areas of national planning, education, communications and broadcasting, was designed to provide them with an opportunity to examine the progress made in space communication and the possibility of using it for the advancement of education and development in Africa. The report contains information on operating and planned systems for the use of communication satellites in various regions of the world, notes on some examples of African experience in educational broadcasting system for Africa, and the conclusions and the recommendations of the Seminar. (Annex: List of participants).

243 UNITED NATIONS/UNESCO AFRICAN REGIONAL SEMINAR ON SATELLITE BROADCASTING SYSTEMS FOR EDUCATION AND DEVELOPMENT, Addis Ababa, October 1973. *Aide-mémoire.* New York, United Nations, 1973. 4 p. (processed).

Aide-mémoire dealing with the following: I. Background and purpose (to provide an opportunity for the participants to acquaint themselves with the progress made in the area of space communications and study the scope of using satellite broadcasting systems for advancement of education beneficial to the developing countries in Africa; II. Date and place; III. Programme (1. Description of communication satellites and possible application for information, education and culture and development - 2. Outline of space communications systems, experiments and plans in various parts of the world, particularly Brazil, Canada, India, South America and the United States - 3. Recent African experience in the use of television for education and its relevance to space communication developments - 4. Possibilities of a regional satellite broadcasting system for Africa); IV. Participants (senior officials concerned with policy-making in the areas of: national planning, education, communication, broadcasting and technology); V. Administrative arrangements.

244 _____. *Brazilian satellite: A progress report* by Dr. João Batiste Araujo e Oliveira. Paris, Unesco, 1973. /10 p. incl. Bibliography/. (processed).

Brazilian Tele-education Programme (PRONTEL) Working Paper stating that the developmental activities, initially restricted to the SACI project, in a research capacity, have expanded to one of the areas of responsibility of the Ministry of Communications, at a project planning level. Whereas the Ministry of Communications becomes prepared to submit to COBAE (created in 1971), in the near future, a project proposal for a Brazilian Domestic Satellite, PRONTEL (created in 1972) is consolidating its philosophical and political bases, in compliance with policies and guidelines of the Ministry of Education and Culture, as a prerequisite for the development of comprehensive and realistic tele-education programmes - eventually with satellite components - and for the assimilation of the large amounts of experience accumulated abroad in this relevant and challenging area of concern. According to the preliminary studies already made, this satellite would make possible up to three TV channels for educational - mainly instructional - purposes. All the suggested alternatives have common characteristics, such as total country coverage, simultaneity of transmission, quality control. COBAE's and PRONTEL's functions, together with actual transmissions of educational programmes and future developments in the different Brazilian States are outlined. The document also points out that some prerequisites must still be attained before Brazil becomes prepared to make effective use not only of an eventual satellite but, above all, of a rapid growing surface system.

245 _____. *Communication satellites - A review of present systems and future broadcasting applications* by E. Lloyd Sommerlad. Paris, Unesco, 1973. 7 p. (COM-73/CONF.701/3).
Also published in Fr.

Revised edition of document listed under No. 241.

246 **UNITED NATIONS/UNESCO AFRICAN REGIONAL SEMINAR ON SATELLITE BROADCASTING SYSTEMS FOR EDUCATION AND DEVELOPMENT**, Addis Ababa, October 1973. *Extracts and conclusions of a study undertaken in Africa for Unesco and ACCT in 1972*, under the direction of Max Egly. 15 p. Paris, Unesco, 1973. (COM-73/CONF.701/4).
Also published in Fr.

Document including extracts of the final report entitled "Study on the Transnational Reception of Educational Television Programmes". It gives a summary of selected passages relative to the organization of the experiment and criteria of selection of programmes. It also provides some of the conclusions (reaction to the hypothesis of broadcasting by satellite and to the possibility of transnational programming and transmission) and suggests experiments which could clarify the future problem of the use of satellite for education.

The study appears under Entry No. 051

247 _____. *Instructional television experiments with "Symphonie" satellite* by B. Manuali. Paris, CNES, 1973. 14 p. incl. Figures (CNES/DGP/PA.D No. 73-T-119).

Centre National d'Etudes Spatiales (CNES) Working Paper in which the author comes to the conclusion that it will be possible to perform, for the first time in Africa, an instructional television experiment with the Symphonie satellites. This experiment could start as early as 1975. As far as the developing countries are concerned not only does the use of satellites seem to be the most efficient solution from an economic point of view, but it is probably the only way liable to stimulate the international feeling of solidarity necessary to solve the most formidable problem education is faced with. The way is certainly an uneasy one for it demands a very high degree of co-operation between States but the goal is worth taking up the challenge. The countries who would be interested in participating in such experiments are asked to contact the CNES. Such data would allow very profitable talks leading rapidly to the organization of an important international programme, and, it is hoped, to instructional television experiments. (Fig. I: Satellite Symphonie. Fig. II: Coverage zones of the Symphonie satellites. Fig. III: System layout. Fig. IV: Progressive implementation of educational TV programmes).

248 _____. *Plans for the use of satellite communications in Europe* by Edward W. Ploman. Paris, Unesco, 1973. 13 p. (processed).

International Broadcast Institute (London, England) Working Paper stating that in order to undertand space developments in Europe ("Europe" and "European countries" is used to denote the Western European countries that are members of the European space organizations), it is necessary to put the satellite communication aspect in a large perspective. This paper is, under the following headings, first summarizing certain issues related to space policies generally and then discussing major satellite communication projects: I. Background; II. Role of space in the development of communications in Europe (conventional telecommunications - television distribution - television broadcasting - data transmission); III. Present projects and plans (the regional European satellite programme - Symphonie - projects for satellite broadcast systems - choice of system for the development of broadcasting - system aspects - satellite - coverage area - reception system).

249 UNITED NATIONS/UNESCO AFRICAN REGIONAL SEMINAR ON SATELLITE BROADCASTING SYSTEMS FOR EDUCATION AND DEVELOPMENT, Addis Ababa, October 1973. *Possible regional systems for Africa* by C. Derieux. Paris, CNES, 1973. 16 p. incl. Figures, Tables. (CNES/DGP/PA/TE. No. 73.T.160).

Centre National d'Etudes Spatiales (CNES) Working Paper explaining: I. That the adaptation of satellites already built or being built is possible and may provide the necessary capacity suitable for educational TV regional systems (distribution and diffusion); II. That the number of satellites to be implemented and subsequent system costs could be significantly reduced in case of identical regional systems. Having in mind that the cost of development of a spacecraft can be more than 10 times the cost of a flight unit, whereas the cost of an adaptation is only one to three times the cost of a flight unit, it is obvious that such solutions should be carefully studied. Well aware of the importance and gravity of educational problems in developing countries the CNES is, in its particular field, ready to help to study such regional system definitions. (Fig. I: Modified Symphonie (4 HGz) possible covered zones; Fig. II: Possible covered zones at 2.5 and 4 GHz (modified Symphonie or "320 and 420 Kg satellites"); Fig. III: Symphonie A "isoflux" coverage; Fig. IV: In flight configuration of a modified Symphonie; Fig. V: In flight configuration of a "420 Kg. satellite"; Fig. VI: Common spare satellite for two systems. Table I: Examples of Symphonie capabilities at 4 GHz; Table II: Examples of Symphonie capabilities at 2.5 and 4 GHz; Table III: 320 and 420 Kg. satellites capabilities).

250 _____. *Recent African experience in the use of television for education and its relevance to space communication development. A Nigerian view-point* by Okoro P. Kanu, Secretary Joint Consultative Committee on Education, Federal Ministry of Education, Lagos. Paris, Unesco, 1973. 9 p. incl. Appendices. (processed).

Working paper underlining that efforts to use television to improve the scope and quality of education have been made by broadcasting organizations and various education authorities and institutions, usually employing foreign technical aid. A number of studies had been undertaken and reports produced covering different aspects of the problem of ETV with special reference to the needs and developmental status of Nigeria. Data on the following is given: I. Broadcasting in Nigeria - A brief history (radio broadcasting - the coming of television); II. Experiences in educational broadcasting - the organization angle (the trouble with our ETV); III. Experiences in ETV - acquiring the technical competence; IV. Relevance to space communication development. (Appendix I: Planning Committee on school broadcasts. Appendix II: Institute of Mass Communication - University of Lagos. Appendix III: Some of the most rampant problems encountered in the use of television for education in Nigeria).

251 _____. *Satellite Instructional Television Experiment* (SITE) by K.R. Rao. Paris, Unesco, 1973. /23 p. incl. Figures/ (processed).

Indian Space Research Organization (Ahmedabad, India) Working Paper explaining that the SITE Project is a complicated system involving hardware and software, many ministries and State governments in India and many national and international organizations. The successful conduct of the experiment and lessons learnt from the Project will be of great significance to a possible future National Satellite System. It is hoped that the experiment will bring out the potentiality of satellite broadcasting as an effective medium of mass communications. A medium with such attributes can be used with great effect for community development purposes and for spread of education in developing countries. (Fig. I: Systems of satellite based national television).

252 UNITED NATIONS/UNESCO AFRICAN REGIONAL SEMINAR ON SATELLITE BROADCASTING SYSTEMS FOR EDUCATION AND DEVELOPMENT, Addis Ababa, October 1973. *Statement* by Viatcheslav N. Kulebiakin. Paris, Unesco, 1973. 7 p. (processed).

USSR Observer statement reviewing TV and space developments and activities in the Soviet Union. The following points are inter alia outlined: I. TV-first programme is broadcast by means of the space communication system called "Orbita" which also serves remote regions; II. In the next few years, the space communication system will be further developed. It will use "Molnia-2" satellites, geostationary satellites and will include a direct broadcasting system. The number of ground stations will exceed 70; III. The Central Television has a special television programme which is exclusively devoted to educational programmes; IV. Attention is drawn to two key provisions in the agreement on the establishment of Inter-Sputnik which is an example of fruitful co-operation in the international organization of space communications; V. Importance attached by the Soviet Union to the development of direct broadcasting from satellites. Such a powerful means of mass information can ensure unprecedented progress in culture, education, dissemination of advanced achievements of science and technology, etc. The elaboration of the legal regime of direct television broadcasting from satellites is considered by the Soviet Union as an urgent matter. The main purposes of the USSR draft Convention on principles governing the use by States of artificial earth satellites for direct television broadcasting are underlined.

253 UNITED NATIONS/UNESCO REGIONAL SEMINAR ON SATELLITE BROADCASTING SYSTEMS FOR EDUCATION AND DEVELOPMENT, Mexico City, September 1975. *Report.* New York, United Nations, 1975. /34 p. incl. Annexes/. (A/AC.105/160 and Corr. 1).
Also published in Esp., Fr., Rus.

Joint United Nations/Unesco Seminar designed to provide an opportunity for participants from the Economic Commission for Latin America (ECLA) region to acquaint themselves with national and regional programmes for education and development in various parts of the world utilizing satellite broadcasting techniques and to discuss problems of establishing a regional tele-education system for the countries of Latin America. To achieve this purpose, the Seminar covered the following topics: I. An overview of space communication systems, projects and experiments; II. Detailed reports on some ongoing operational and experimental programmes or planned systems; III. The satellite option in the UNESCO/ITU feasibility study of a regional tele-education system for the countries of Latin America; IV. Satellite system planning and communication policies; V. Prospects for space applications for education and development in Latin America (panel discussion); VI. Technical visits. (Annex: Papers presented).

254 _____. *Broadcasting satellites in the context of international telecommunication planning and operation. The World Administrative Radio Conference for the Planning of the Broadcasting Satellite Service (11.7-12.2 GHz Band) in 1977* by Charles W. Sowton. Paris, Unesco, 1975. 25 p. (processed).

International Telecommunication Union (International Frequency Registration Board) Working Paper in which the author deals firstly with the essential technical need for international co-operation and co-ordination in satellite broadcasting, then outlines the provisions that have been made by the Member countries of the International Telecommunication Union, in order to secure this, and finally refers to the forthcoming World Administrative Radio Conference for the Planning of the Band 11.7-12.2 GHz for Satellite Broadcasting, to be held in Geneva in 1977. Reference is also made to the work of two organs of the ITU, namely the CCIT, the International Radio Consultative Committee, in relation to satellite broadcasting, and the International

Frequency Registration Board, in relation to the publication of advance information on proposed satellite broadcasting systems and the co-ordination, notification and registration of frequencies for satellite broadcasting and in connection with the technical preparation for frequency planning conferences.

255 UNITED NATIONS/UNESCO REGIONAL SEMINAR ON SATELLITE BROADCASTING SYSTEMS FOR EDUCATION AND DEVELOPMENT, Mexico City, September 1975. *Broadcasting satellites for education and development - Their political and social implications* by Teófilo M. Tabanera. Paris, Unesco, 1975. /15 p. incl. References/. (processed).

Working Paper dealing with the following: I. Educational aspects of a large-scale broadcasting system; II. The question of sovereignty; III. Uniformity and the fear of self-tyranny; IV. Satellite versus intermediate or mixed solutions; V. Political, economical and legal problems; VI. Regional system or national system - and coming to the following conclusion: It would seem that the excessive weight of daily events in many countries within the region has caused the neglect of the need for urgent solutions of large-scale and long-range projects such as the one which concerns Latin Americans now, which are to have an unquestionable positive influence on the rapid and sustained improvement of these communities. It seems that educational authorities and educators themselves on the one hand and politicians on the other, are gradually progressing in their understanding of the magnitude of the problem as well as the extraordinary possibilities offered by space technology to contribute positively to their improvement. Latin Americans have the merit to have been among the first to envisage this type of large-scale solution to solve their critical educational problems and propose them at national and international forums.

256 _____. *Communication satellites - A review of present systems and future broadcasting applications* by E. Lloyd Sommerlad. Paris, Unesco, 1975. 11 p. (COM-75/CONF.703/2).
Also published in Esp.

Revised edition of document listed under Entry No. 245

257 _____. *Economic consideration and options for optimum design for a satellite broadcasting system* by Professor Bruce B. Lusignan. Paris, Unesco, 1975. 8 p. (processed).

Stanford University (Communication Satellite Planning Center). Working Paper stating that the principal role of communication satellites in developing countries is in providing telephone and television services to non-urban areas. Comparison of satellites with conventional communications technology shows satellites to have major cost advantages in non-urban services and only minor advantages in services to urban centres. Telephone service for co-ordination and remote advising and a wide range of adult education facilities made possible with the help of television will have a major effect on the potential of a country to develop its rural economy. It is important for national planners to know the cost trade-offs involved in the design of a national communications satellite system. This paper summarizes some of the important elements in the system design from the social development viewpoint, and by way of example presents the base line system design recommended to the Government of Iran.

258 UNITED NATIONS/UNESCO REGIONAL SEMINAR ON SATELLITE BROADCASTING SYSTEMS FOR EDUCATION AND DEVELOPMENT, Mexico City, September 1975. *Educational policy implications of the ATS-6 satellite demonstration* by H.R. Holt. Paris, Unesco, 1975. 23 p. (processed).

National Institute of Education (Washington, U.S.A.) Working Paper in which the use of the ATS-6 satellite in educational applications in Alaska, the Rocky Mountain States, and Appalachia is analysed from the point of view of school functions rather than satellite capabilities. Audio interaction is found to be incompatible with economical use of satellite telecommunications in schools. Materials distribution is found to be the most probable effective use of satellite services, provided it can compete in cost and reliability with mail systems. A brief description of the special conditions in Alaska is included, with comparison to other nations. The implicit relation between technological choices and cost sharing assumptions is discussed.

259 _____. *Experiments in the applications of high power satellites to education and development - Communications Technology Satellite* by B.C. Blevis. Paris, Unesco, 1975. [25 p. incl. Figures, Tables] (processed).

Department of Communications (Ottawa, Canada) Working Paper in which the author makes inter alia the following concluding remarks: I. The Communications Technology Satellite, as described in the document, provides the opportunity not only to investigate the additional options which can be made available by the exploitation of new technological advancements, but also the social, cultural and economic impact of their introduction; II. The experiments in education will deal with a variety of settings and instructional formats; III. The CTS experiments programme will give communities and native organizations an opportunity to test various approaches to community interaction and development; IV. The types of applications which will be investigated using the CTS technology are relatively novel in Canada; V. The CTS communications experiments project is already contributing significantly to an expansion of the understanding, the skills and organizational resources within Canada that will be necessary to make most effective use of the new technology for the benefit of all Canadians. (Table I: Communications Technology Satellite; Table II: CTS Communications terminal characteristics (12-14 GHz); Table III: CTS communications experiments - technical; Table IV: CTS communications experiments - social. Fig. 1: Television broadcasting coverage - 1971; Fig. 2: Anik earth stations; Fig. 3: Communications Technology Satellite; Fig. 4: Typical coverage areas of CTS spacecraf antennas.

260 _____. *Possibilities and limitations of satellite broadcasting systems for developing countries* by C. Rosetti. Paris, Unesco, 1975. 14 p. incl. Figures.(processed).

European Space Agency Working Paper in which the author has brought out certain essential features of satellite broadcasting systems that might help developing countries to speed up their progress. To avoid too long mention of national telecommunication systems, which ought to be developed as well and which might derive considerable benefits if their structures dovetailed with those of the broadcasting satellite systems, they have been left out, but provision for them should be made in the planning. The most important thing at this stage is to proceed from well-intentioned talks to actual achievements, modest though they may have to be at first. This would constitute an experimental/pre-operational and preparatory phase during which the main aim would not be to realize optimum systems, but to introduce the least expensive one. Such a start would make for the smooth setting-up of the interdisciplinary institutional structures required for the operation and use of the satellite systems. The United Nations could play an extremely important role in this process.

261 UNITED NATIONS/UNESCO REGIONAL SEMINAR ON SATELLITE BROADCASTING SYSTEMS FOR EDUCATION AND DEVELOPMENT, Mexico City, September 1975. *The Rio Grande do Norte Experiment in the context of the Brazilian educational broadcasting* by Luiz Antonio Souza Lima de Macedo. Paris, Unesco, 1975, 16 p. incl. Annexes. (processed).

National Programme for Tele-Education (PRONTEL - Brazil) Working Paper presented under the following headings: I. Satellite for education: The Brazilian standpoint (The viewpoint of Brazil is that the satellite for this country is related to communications priorities instead of educational ones. Brazilian educators are seriously following the tele-education experiments via satellite, but are also aware that only after the establishment of an infrastructure of utilization and the improvement of production standards it will be possible to proceed with an objective analysis on the use of satellites); II. Educational broadcasting in Brazil: Basis and guidelines (The educational system has to make use of various types of innovations specifically the most adequate for the accomplishment of its objectives. Guidelines having in view the utilization of technologies for the accomplishment of educational objectives and priority areas to be served by the educational broadcasting resources are listed): III. The Rio Grande do Norte Experiment: Perspectives (Responsibilities of each authority are outlined. Integration of Rio Grande do Norte Educational Experiment into the educational broadcasting activities, which are enriching the Brazilian Educational System with innovative solutions). (Annex I: Missions table - Rio Grande do Norte Educational Experiment. Annex II: ETV in Brazil - 1975. Annex III: Educational radio in Brazil - 1975).

262 _____. *Satellite broadcasting in the context of communication planning* by E. Lloyd Sommerlad. Paris, Unesco, 1975. 11 p. (COM-75/CONF.703/3). Also published in Esp.

Reprint of a paper presented at the ITU Symposium on Space and Radio Communication, Le Bourget (France), May-June 1973.

See under Entry No. 086

263 _____. *The satellite option is the Unesco/ITU feasibility study of a regional tele-education system for the countries of South America.* Paris, Unesco, 1975. 67 p. incl. Tables, Charts. (COM-75/CONF.703/1). Also published in Esp.

Document composed of the following extracts from the technical annex to the report of the study, prepared by the International Telecommunication Union: I. Communication systems applicable to tele-education (conventional radio and television broadcasting, television receivers, transmission of ETV programmes, satellite broadcasting, other telecommunication systems, regional manufacture of technological components, energy sources); II. Broadcasting satellites (general considerations, technological aspects, system analysis, smaller system); III. Other resources (cable distribution - CATV, comparison of CATV + rebroadcast by means of repeaters, comparison between CATV and community reception of programmes transmitted by broadcasting satellites, balloons, tropescatter; IV. Choice of communications.

264 _____. *Satellites, system planning and communication policies: some economic considerations* by Dr. Edwin B. Parker. Paris, Unesco, 1975. 4 p. (processed).

Stanford University (Institute for Communication Research) Working Paper stating that the key economic consideration in national communication satellite planning and policy-making should be the probable impact of a satellite system on the national economy. This is a completely different approach from

the costs of various technical alternatives for implementing a satellite broadcasting system. It raises the prior question of what kind of communication infrastructure will best assist a nation to reach its goals for economic and social development. In other words, the key economic question to ask is not what is the most economical design for a satellite broadcasting system. Instead, national planners should ask what kind of communication system will best contribute to the economic and social development goals of the nation.

265 UNITED NATIONS/UNESCO REGIONAL SEMINAR ON SATELLITE BROADCASTING SYSTEMS FOR EDUCATION AND DEVELOPMENT, Mexico City, September 1975. *Some lessons during the setting up of SITE* by Yash Pal. Paris, Unesco, 1975. 26 p. (processed).

Space Applications Centre (Ahmedabad, India) details on SITE background, programme and objectives and stating that none of the persons engaged in this experiment view it as an optimal operational system nor do they believe that one year's experiment will bring about large measurable social changes in the country. However, it is believed that through this experiment we will be able to learn how an ongoing system ought to be configured, installed and managed, and what are the necessary conditions for the programmes to be effective. The experiment has barely started and there will be many things to be learnt while it proceeds. It is planned to have a thorough evaluation of the technical, managerial and social aspects of the experiment for which dedicated teams of experts have already been set up. In the rest of his talk the orator recounts some of the experiences while setting up this experiment and a few of the lessons, some of which would be specific while others would be of a more general interest.

UNITED NATIONS

See also under Entries No. 003, 040, 130, 152

266 /UNESCO EXPERT MISSION TO/ AFRICAN COUNTRIES SOUTH OF THE SAHARA /to make a/ preliminary study of an African regional satellite system for education, culture and development, December 1972, by J. Torfs /et al/ /*Report*/ Paris, Unesco, 1973. 107 p. incl. Tables. (2869/RMO.RD/FDC). Also published in Fr.

The purpose of the mission was to discover whether a need and a possibility existed for the use of a satellite system for the development of education, culture and information, and to explore whether African countries would be interested in creating and operating such a system, in close co-operation with each other. The mission approached its task from the point of view of the economic feasibility of a regional satellite broadcasting system. The report describes the model of a system which met the criteria it established and mentions a number of variations to it and a possible phased implementation. The report is not a recommendation for an African satellite system, but assesses the potentialities of this new technology in the African context, and identifies some possible options worth detailed investigation. The mission was undertaken with the co-operation of the International Telecommunication Union and the Economic Commission for Africa.

267 /UNESCO EXPERT MISSION TO/ ALASKA /to study the/ implications of satellite communication for education, August-September 1970, by H.R. Cassirer and H. Wigren. /*Report*/ Paris, Unesco, 1970. 68 p., incl. Appendix. (2198/BMS.RD/MC).

Report covering the Unesco-NEA (National Education Association) mission to Alaska. The purpose of the mission was to determine the feasibility of using satellite communications for television and radio transmission and/or reception of instructional and educational materials in remote isolated rural

villages of Alaska. The mission was asked also to recommend specific programme series which might be undertaken on both radio and television via satellite transmission in order to meet the instructional and professional development needs of teachers in rural areas and in order to make a concerted attack on problems facing the rural peoples of Alaska. (Appendix: An Experiment in Programming from the field - A Supplementary Report by Henry R. Cassirer).

268 /UNESCO EXPERT MISSION TO/ ARAB STATES /to make a preliminary study of/ the use of satellite communication for education and national development, December 1970, by E.W. Ploman, A. Berrada, B. Clergerie. /Report/. Paris, Unesco, 1971. 78 p. (2342/RMS.RS/FF).
Also published in Fr.

Following requests from the Governments of Morocco, Algeria, United Arab Republic, Sudan, Kuwait and Iraq and from the Arab States Broadcasting Union, a joint Unesco/ITU mission was sent to these countries in December 1970 with the mandate of carrying out a preliminary study on the potentialities of space communication in the Arab region. The study was made within the context of the use and expansion of broadcasting and telecommunications generally, with special reference to their contribution to education and development. In addition to covering, in some detail, certain aspects in the countries visited, the report also endeavours to deal with the requirements of the Arab States in general, taking into account both common features and differences in conditions and resources and to suggest action which might be taken on the regional level.

269 /UNESCO EXPERT MISSION TO/ ARAB STATES /to study/ a regional satellite for education, communication and culture in the service of development, November-December 1972, by B. Clergerie. /Report/ Paris, Unesco, 1973. /47 p. incl. Annexes/. (2886/RMO.RD/FDC).
Also published in Fr.

Complementary mission following the 1970 Unesco mission. The aim of this second mission was to see what possibilities and objectives exist in the countries of the Arab region for a space communication system functioning on the basis of regional co-operation. The general pattern of this report is an overall thematic analysis presented under the following headings: I. Areas of concern and areas of reference; II. Aims and options; III. Infrastructure and existing or planned institutions; IV. Existing or planned regional and subregional operations in the field of communication, education, science and culture; V. Necessary conditions for establishment of the institutions' training-schemes and operations on which an effective use of the mass media at regional and subregional level (i.e. use of satellite) depends; VI. Recommendations. (Annex I: States which have established space committees; Annex II: Distribution of television programmes in some countries; Annex III: Simplified pattern of a radio-television operation; Annex IV: Conditions for innovations in educational systems; Annex V: Possible pattern for regional organization; Annex VI: Map - Arab countries; television ground network and main telecommunication cables).

270 /UNESCO EXPERT MISSION TO/ ARAB STATES /to assist in establishing a/ Media Innovation System /using/ communication satellites for broadcasting, education and development, 1975, by B. Clergerie and R. Dill. *Technical Report*. Paris, Unesco, 1975. /50 p. incl. Annexes/. (RP/1975-76/4.121.4 - FMR/COM/RPC/75/141).
Also published in Fr.

Report prepared for the Arab States Broadcasting Union by Unesco. It deals inter alia with the following: I. Possibilities of expansion, differentiation, intensification and enrichment to broadcasting for education offered by this System (ASMIS); II. Mission's opinion concerning the hardware

facilities required in the regional telecommunication network; III. Representation and involvement of broadcasting and educational authorities in the management of the System; IV. Planning for the software; V. Use of existing means of coverage and exchange - pursuit of existing projects; VI. Initiation and implementation of new experiments and pilot projects; VII. Establishment of a joint committee for software planning and request for funding a Task Force of international experts; VIII. Establishment of National Communication Planning Committees. (Annex: Questionnaire and Tables).

271 /UNESCO EXPERT MISSION TO/ BRAZIL /to make a/ preparatory study of the use of satellite communication for education and national development, May-June 1968. *Report*. Paris, Unesco, 1968. 33 p. (COM/WS/86).

Report by a Unesco mission (led by E.W. Ploman) consisting of an expert on broadcasting, an expert on educational television and a member of the International Telecommunications Union's impressions of those problems in Brazil to whose solution a domestic satellite system could effectively contribute. The mission particularly wished to stress that it had based its work on the assumption of a satellite system for country-wide, national use.

272 /UNESCO EXPERT MISSION TO/ INDIA /to make a/ preparatory study of a pilot project in the use of satellite communication for national development purposes, November-December 1967. *Report*. Paris, Unesco, 1968. /40 p. incl. Annex/. (COM/WS/51).

Report by a Unesco expert mission (led by E.W. Ploman) prepared in co-operation with a national counterpart team appointed by the Government of India. Decision of the Indian authorities to examine the applications of space technology for the improvement of television communication to help alleviate such urgent problems as containment of the population explosion, increase in agricultural productivity, and the fight against illiteracy. (Annex: Selected list of reference material).

273 /UNESCO EXPERT MISSION TO/ PAKISTAN /to/ study the possibilities of using space communication for education and development, February-March 1969. *Report*. Paris, Unesco, 1969. /25 p. incl. Annex/. (COM/WS/142).

Report by a Unesco expert mission (led by Frederik B. Rainsberry) who concluded that a satellite system for educational television at the present time does not seem appropriate for Pakistan. This country is too highly developed to get maximum benefit from a satellite system devoted solely to educational television. Plans to cover the total country in four to five years with educational television by terrestrial means, at less cost than by satellite, should prevail.

274 /UNESCO EXPERT MISSION TO/ SOUTH AMERICA /to make a/ preparatory study of the use of satellite communication for education and national development, August-September 1969, by E.W. Ploman, W.B. Pierce and J. Torfs. /Report/ Paris, Unesco, 1970. 99 p. (1903/BMS.RD/COM).

Following requests from the Governments of Argentina, Uruguay, Chile, Peru, Ecuador, Colombia and Venezuela, an expert mission was sent to these countries with the mandate of making a preliminary study, with the authorities concerned, of the viability of a communication satellite programme for educational and national development purposes on the basis of the development needs of the countries visited. The report attempts to outline and draw the attention of the authorities concerned to what, in the opinion of the mission, seem to be significant factors directly or indirectly related to the objectives of the mission.

275 "Unesco's programme in space communication". In: *International co-operation in outer space: A Symposium.* Prepared for the Committee on Aeronautical and Space Sciences, United States Senate. Washington, United States Government Printing Office, 1971. pp. 365-381.

Unesco contribution to United States Senate publication outlining Unesco's past, present and future activities in the field of space communication. This chapter follows the sequence of the enumerated list of topics: I. Purposes and structure of Unesco; II. Unesco constitutional mandate with regard to space communication; III. Definition of Unesco's international role; IV. The development of a space communication programme; V. Advisory panel. VI. Fields of competence (free flow of information, modern methods of educational broadcasting, cultural and scientific exchanges); VII. Means of action (co-operation with professional organizations, studies and research, promotion of international agreements, assistance to Member States); IX. The future perspective; X. Unesco publications on space communications.

276 *The use of satellite communication for education and economic development:* report of the Director-General on the feasibility of the pilot project and on possible international arrangements. Paris, Unesco, 1968. 9 p. (Unesco 15 C/60).
Also published in Esp., Fr., Rus.

Document submitted pursuant to resolution 4.13 adopted by the General Conference at its fourteenth session, on the promotion of the use of space communication to further Unesco's aims. The first part is devoted to a possible pilot project in the use of satellite communication for education and economic development (short version of the Unesco mission to India) and the second part to possible international arrangements in the space communication field.

277 "The use of satellites in the fields of information and education". In: *Unesco Chronicle* (Paris), Vol. IX, No. 11, November 1963, p. 377.
Also published in Esp., Fr. 20 cents; 1/-stg.; 0.50 F.

Mention of a report entitled "Space Communication in the Promotion of Unesco's Aims" prepared on the occasion of a conference in Geneva organized by the International Telecommunication Union in October 1963, and sent by the Director-General of Unesco to Member States. The use of space communication by the press, radio and television, and the advantages it offers in the fields of information, education and cultural exchanges, are dealt with in this report.

278 "The use of space communication for information and education purposes". In: *Unesco Chronicle* (Paris), Vol. IX, No. 5, May 1963, p. 181.
Also published in Esp., Fr. 20 cents; 1/-stg.; 0.50 F.

Mention of a report the Unesco Secretariat was preparing concerning the prospects being opened up by space communication in the general field of information. Its authors tried to assess the extent to which space communication could promote the flow of information and the development of education, and indicated the frequencies and other technical facilities needed for this purpose.

WENRICK Ernest D.
See under Entry No. 121

279 "Who owns equipment left on the moon?" In: *Unesco Chronicle* (Paris), Vol. XVII, No. 10, October 1971, p. 375.
Also published in Ar., Esp., Fr. $0.30; 10 p.; 1.20 F.

Mention of an article written by Professor G.P. Zhukov, Scientific Secretary to the Commission on Legal Problems of Space of the Academy of Sciences of the USSR, in the publication *Impact of Science on Society* (Vol. XXI, No. 3) in which he points out that a number of questions related to scientific research on the moon and exploitation of its natural resources have not yet been covered by treaty.

WIGREN, H.
See under Entry No. 267

WORLD INTELLECTUAL PROPERTY ORGANIZATION (WIPO)
See under Entries No. 022-043, 045, 047, 072-079

280 "World prospects for the mass media". In: *Unesco Chronicle* (Paris), Vol. XI, No. 11, November 1965, p. 434.
Also published in Ar., Esp., Fr. 20 cents; 1/-stg.; 0.70 F.

In his statement addressed to the Annual General Assembly of the Italia Prize in Florence, on 25 September 1965, Tor Gjesdal mentioned the international meeting to be held in December at Unesco House to study how space communication may best be used in the service of man, and more especially for educational purposes and cultural exchanges, as an important contribution for the new means of expression which modern techniques have given us and which will ultimately bring the very best of cultural values to everyone, everywhere.

281 ZHUKOV, G.P. "The new extra-terrestrial jurisprudence". In: *Impact of Science on Society* (Paris), Vol. XXI, No. 3, 1971, pp. 233-241.
Also published in Esp., Fr. $1.25; 40 p. (stg.); 5 F.

What laws will apply to the activities and relations of scientific teams on the moon? How high up does the sovereignty of States extend to control the over-flights of working satellites? What shall be the laws covering the rescue of spacemen in distress, the damage caused by returning space objects? How will the sharing by States of systems of working satellites - such as communications satellites - be regulated? These are but a few of the pressing legal questions that man's activities in space have raised. They must be resolved in sound international law which will assure that space is only used for peaceful purposes and for the benefit of all mankind.

Listing by title

Achieving a balance between regions: 119

Address by Julian Behrstock - XIVth International astronautical congress, 1963: 066

Address by Henry R. Cassirer - International conferences on space and communication, Paris, 1971 (MC/723/2503): 071

Address by Arthur C. Clarke - Meeting of government experts on international arrangements in the space communication field, Paris, 1969 (COM/CONF.3/INF.3): 148

Addresses by René Maheu:

Committee of governmental experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites (2nd), Paris, 1972 (DG/72/7): 031

International conference of states on the distribution of programme-carrying signals transmitted by satellites, Brussels, 1974 (DG/74/4): 073

Meeting of government experts on international arrangements in the space communication field, 1969 (UNESCO/DG/69/10): 146

Address by M. Mili - Meeting of government experts on international arrangements in the space communication field, 1969: 147

Address by E. Lloyd Sommerlad - The miracle age of space satellites: 203

Administrative documents (COM/CS/68/1/5): 111
(COM/SPACE/PANEL V/6): 162

Africa: 012, 051, 053, 131, 192-196, 210, 215, 221, 230, 242, 243, 246, 247, 249, 250, 266

African countries south of the Sahara - preliminary study of an African regional satellite system for education, culture and development, 1972 (2869/RMO.RD/FDC): 266

Aide-Mémoire on frequency allocations for space communication; the significance for Unesco's aims of the ITU Conference: 087

Aide-Mémoire on frequencies for broadcast satellites: (COM/FDC/RPC.49/12): 082

Aide-Mémoire, UN/UNESCO African regional seminar on satellite broadcasting systems for education and development, Addis Ababa, 1973: 243

Alaska: 193, 258, 267

Alaska - implications of satellite communication for education, 1970 (2198/BMS.RD/MC): 267

An annotated bibliography of United Nations publications and documents relating to Unesco's activities in the field of space communication 1947-1974 (COM.74/WS/12): 003

Approved programme and budget (12 C/5- . C/5): 004

Arab States: 012, 165, 192-195, 221, 222, 268-270

Arab States - media innovation system, 1975 (RP/1975-76/4.121.4 - FMR/COM/RPC/75/141): 270

Arab States - a regional satellite for education communication and culture in the service of development, 1972 (2886/RMO.RD/FDC): 269

Arab States - the use of satellite communication for education and national development, 1970 (2342/RMS.RS/FF): 268

Argentina: 163, 193

Asia (South East): 002, 192, 193

Basic specifications for a satellite system for education in Argentina (COM/SPACE/PANEL V/3): 163

Benefits to be derived from space microbiology: 232

Benefits of world exchanges (Working Paper: UNESCO/SPACE/COM/12): 120

Beyond Babel: the century of the communications satellite (COM/CONF.3/INF.3): 148

Bibliographies (COM-74/WS/12): 003
(ED-76/WS/55): 192
(COM/WS/349): 193

Brazil: 193, 195, 201, 243, 244, 261, 271

Brazil - preparatory study of the use of satellite communication for education and national development, 1968 (COM/WS/86): 271

Brazilian satellite: a progress report: 244

Broadcasting from satellite: 013

Broadcasting satellites (Reports and papers on mass communication No. 74): 202

Broadcasting satellites in the context of international telecommunication planning and operation. The world administrative radio conference for the planning of the broadcasting satellite service (11.7-12.2 GHz Band) in 1977: 254

Broadcasting satellites for education and development; their political and social implications: 255

Broadcasting from space (Reports and papers on mass communication No. 60): 014

Broadcasting and space communication: 015

Canada: 020, 154, 193, 195, 201, 243, 259

The challenge on the spaceship: 018

Colloquiums:

United Nations and the legal problems of space (Constance, 1970): 021

International colloquium on educational satellites and international co-operation (Nice, 1971): 067-070

Commentary of the draft convention against the unauthorized distribution of programme-carrying signals transmitted by satellites: 038

Comments received from governments - Committee of governmental experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites (2nd), Paris, 1972 (UNESCO/WIPO/SAT.2/4 and Add. 1-2): 032

Comments received from governments - Committee of governmental experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites (3rd), Nairobi, 1973 (UNESCO/WIPO/SAT.3/3 and Add. 1): 039

Comments received from intergovernmental and international non-governmental organizations - International conference of states on the distribution of programme-carrying signals transmitted by satellite, Brussels, 1974 (UNESCO/WIPO/ CONF.SAT/5): 074

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Committees:

Governmental experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites

(1st): 022-029
(2nd): 030-036
(3rd): 037-043

Communication from the International Telecommunication Union - Committee of governmental experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites, Lausanne, 1971 (UNESCO/WIPO/SAT/9): 023

Communication received by the Director-General from the President of the Asian Broadcasting Union (COM/CS/68/1/INF.2): 112

Communication satellites for education, science and culture (Reports and papers on mass communication No. 53): 189

Communication satellites and the mass media: economic aspects (UNESCO/SPACE/COM/5): 121

Communication satellites - a review of present systems and broadcasting applications (COM-76/CONF.712/2): 195

Communication satellites - a review of present systems and future broadcasting applications: 241
(COM-73/CONF.701/3): 245
(COM-75/CONF.703/2): 256

Communication satellites: satellite broadcasting for education and training (A/AC.105/C.1/L.45): 221

Communication in the space age; the use of satellites by the mass media: 122

Communications on the moon; a major problem for lunar explorers: 177

Conferences:

German foundation for developing countries (Munich, 1972): 061

International conference on space and communication (Paris, 1971): 071

International conference of states on the distribution of programme-carrying signals transmitted by satellite (Brussels, 1974): 072-079

International Telecommunication Union extraordinary administrative radio conference on space communications (Geneva, 1963): 080-081

International Telecommunication Union frequency planning conferences (1973): 082

International Telecommunication Union plenipotentiary conference (Malaga, 1973): 083

International Telecommunication Union world administrative radio conference (Geneva, 1971): 087-089

United Nations conference on the exploration and peaceful uses of outer space (Vienna, 1968): 232-237

Congress:

International astronautical (XIVth), 1963: 066

Contribution of space communication to the achievement of Unesco's aims (16 C/4- . C/4): 050

Convention relating to the distribution of programme-carrying signals transmitted by satellite: 045, 075

The decisive step in the conquest of cosmic space: 054

Declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange: 046

Design options and costs for multi-purpose satellite systems for Africa: 196

Desirability of modifying existing conventions or preparing a new international instrument on the protection of television signals transmitted by communication satellites (16 C/21): 047

Development and application of communication systems: 182

A direct broadcast satellite for education and development in Africa?: 210

Direct broadcasting by satellite: the implications for Unesco programme (A/AC.105/60): 226

Direct TV from satellites: 048

Draft convention against the unauthorized distribution of programme-carrying signals transmitted by satellites: 041

Draft declaration of guiding principles on the use of satellite (or space) broadcasting for the free flow of information, the spread of education and greater cultural exchange (17 C/76 and Add.): 049
(COM-72/CONF.4/3): 102
(A/AC.105/104): 216

Draft medium-term outline plan /5 years/ (16 C/4- . C/4): 050

Economic consideration and options for optimum design for a satellite broadcasting system: 257

Economics of communication satellite introduction into the proposed educational broadcasting system of Indonesia (MC/3200/2408): 092

Education and satellites - third world possibilities: 067

Educational policy implications of the ATS-6 satellite demonstration: 258

Educational uses of space communication: 084

Effects of space communication on cultural relations: 052

L'emploi des communications spatiales à des fins éducatives: 094

Etude de la réception transnationale d'émissions de télévision éducative: 051

Europe's growing stake in space science: 005

Evolution of satellites and orbits (UNESCO/SPACE/COM/20): 123

Executive Board documents:
(76 EX/4): 113; (78 EX/7): 212; (82 EX/13): 091; (84 EX/4): 181;
(84 EX/9): 090; (88 EX/13 and Corr.): 185; (93 EX/23 and Add. and Corr.): 186

Experiments in the applications of high power satellites to education and development - communication technology satellite: 259

Extending the range of broadcasting (UNESCO/SPACE/COM/15): 124

Extracts and conclusions of a study undertaken in Africa for Unesco and ACCT in 1972, under the direction of Max Egly (COM-73/CONF.701/4): 246

Ezekiel makes his own wheel: 011

A feasibility study of a pilot project using a communication satellite primarily for educational television: 125

Final act of the International conference of states on the distribution of programme-carrying signals transmitted by satellite: 076

Final report by Unesco - United Nations/Unesco African regional seminar on satellite broadcasting systems for education and development, Addis Ababa, 1973 (COM/MD/27): 242

Final technical report - UNDP/Unesco expert mission to South America to study the feasibility of a regional system of tele-education, 1972-1973 (UNDP/RLA/71/223 - Serial No. FMR/COM/RPC/75/207"UNDP"): 239

First draft declaration on the guiding principles for the use of space communication for the free flow of information, the spread of education and greater cultural exchange (COM-71/CONF.5/4 and Add. 1-2): 104

Frequency allocation for space communication (FF/1299/27/5/71): 088

General Conference documents (12 C/5- . C/5): 004; (14 C/25): 098; (15 C/60): 276; (16 C/4- . C/4): 050; (16 C/21): 047; (17 C/24 and Corr.): 183; (17 C/76 and Add.): 049; (17 C/98 "Annex"): 046; (20 C/3): 184

Global assault on the weather: 167

A guide to satellite communication (Reports and papers on mass communication No. 66): 180

The heart of the matter: 060

Hurdles in space broadcasting: 213

Impact of communication satellites on the educational broadcasting system to be designed for Indonesia (MC/3200/2408): 092

Implication de l'usage des satellites pour une éducation nouvelle: 215

Implications for broadcasters of decisions of the world administrative radio conference for space telecommunications (COM-71/CONF.5/6): 105

India: 017, 125, 139, 154, 157, 160, 165, 187, 192-194, 199, 201, 212, 230, 243, 251, 265, 272

India - preparatory study of a pilot project in the use of satellite communication for national development purposes, 1967 (COM/WS/51): 272

Indonesia: 002, 065, 092, 170, 193, 195

Instructional television experiments with "Symphonie" satellite (CNES/DGP/PA.D. No. 75-T-119): 247

International arrangements to promote the use of space communication for the free flow of information (COM/SPACE/3): 149

International co-operation and international control (UNESCO/SPACE/COM/10): 126

International co-operation in solar-terrestrial research: 233

International co-operation for space broadcasting (FF/2236/0109): 012

International problems of television via satellite: 168

International professional co-operation between broadcasting organizations (COM-71/CONF.5/3 and Add. 1-2): 106-108

Into outer space on radio waves: 016

Introductory report prepared by the Unesco Secretariat - Committee of governmental experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites, Lausanne, 1971 (UNESCO/WIPO/SAT/3): 024

Invitations to the Committee of governmental experts on problems in the field of copyright and the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites (84 EX/9): 090

Invitations to the Meeting of governmental experts on international arrangements in the space communication field (82 EX/13): 091

It does not matter who reaches the moon first; what counts is the benefit to man: 010

Joint enterprises are now a going concern in the exciting field of space research: 059

Lasers, 100 million messages on a beam of light: 057

Latin America: 012, 068, 192, 193, 253, 255

Legal aspects of direct broadcasting by satellite: 174

Legal protection of television broadcasts transmitted via satellites against their use without the permission of the originating organization (COM/SPACE/4): 150

Long-term programme for the use of space communication: proposals by the Director-General (UNESCO/14 C/25): 098

Lunar international laboratory: 058

A management perspective - the Rocky Mountain satellite project (COM-73/CONF.605/2b): 155

Man and space, a great international venture: 001

Mankind and outer space: 099

Meetings:

Meeting of experts on the draft declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchange (Paris, 1972): 101-102

Meeting of experts on international professional arrangements for space broadcasting (Paris, 1971): 103-109

Meeting of experts on the use of space communication for broadcasting (Paris, 1968): 110-117

Meeting of experts on the use of space communication by the mass media (Paris, 1965): 118-144

Meeting of government experts on international arrangements in the space communication field (Paris, 1969): 145-153

Meeting on management and planning of new communication systems (Paris, 1973): 154-155

Message from His Excellency, U Thant - Meeting of experts on the use of space communication by the mass media, 1965 (COM/SPACE/COM/INF.5): 127

The miracle age of space satellites: 203

Missions:

Unesco: 266-274

UN/Unesco: 239

My first steps in space: 095

The need for international agreements (UNESCO/SPACE/COM/13): 128

The new extra-terrestrial jurisprudence: 281

The new music of the spheres: 190

New vistas for education through artificial satellites: 171

New ways to explore the planets: 178

Note on the Meeting of experts on the use of space communication for broadcasting (COM/WS/7): 114

Note by the Secretariats of Unesco and WIPO (UNESCO/WIPO/CONF.SAT/3): 077

Observations from space in a global ecology programme: 093

Opening statement by Malcolm S. Adiseshiah - Meeting of experts on the use of space communication by the mass media, 1965 (UNESCO/SPACE/COM/INF.4): 129

Outlook for satellite broadcasting systems (FDC/488/2102): 240

Pacific: 192, 193, 195, 197

Pakistan: 192, 193, 273

Pakistan - a study of the possibilities of using space communication for education and development, 1969 (COM/WS/142): 273

Panels (United Nations): 240-241

Panels (Unesco): 156-166

The peaceful uses of outer space: role of the United Nations committee in general and concerning space communication in particular (UNESCO/SPACE/COM/16): 130

A personal statement at Unesco General Conference (1968): 172

Planning the international use of space communication: 179

Planning for satellite broadcasting - the Indian Instructional Television Experiment (Reports and papers on mass communication No. 78): 017

Plans for the use of satellite communications in Europe: 248

Possibilities and limitations of satellite broadcasting systems for developing countries: 260

Possible regional systems for Africa (CNES/DGP/PA/TE No. 73.T.160): 249

The possible use of communication satellites in Africa (UNESCO/SPACE/COM/21): 131

Possible uses of satellites in education (UNESCO/SPACE/COM/11): 132

The possible uses of space communication by the press in news collection, transmission and dissemination (COM/CS/68/1/3): 115

The potentialities of space communication for promoting the free flow of information and greater cultural exchange, and the related international arrangements needed (A/CONF.34/1.20): 234

Prediction, realization and forecast (UNESCO/SPACE/COM/8): 133

The promise of satellite communication (Reports and papers on mass communication No. 61): 096

Promotion of the use of space communication to further Unesco's aims (UNESCO 84 EX/4): 181, 182

Proposals submitted to the Meeting of experts on the use of space communication by the mass media, 1965, in the name of the International Press Telecommunications Committee, the International Federation of Newspaper Publishers and the Commonwealth Press Union (UNESCO/SPACE/COM/INF.6): 134

Questions to be considered - memorandum prepared by the International Bureau of WIPO (UNESCO/WIPO/SAT/4): 025

Rays from outer space: 064

Recent African experience in the use of television for education and its relevance to space communication development - a Nigerian viewpoint: 250

Recommendation in the field of space research: 006

Recommendations of the Meeting of experts on the use of space communication by the mass media, 1965: 135

The records of the General Conference - resolutions (1964- .): 182

Records of the International conference of states on the distribution of programme-carrying signals transmitted by satellite, Brussels, 1974: 078

Regional system of education for Latin America - considerations of the use of ETV and similar devices - educational coverage of the system: 068

Remote sensing via satellite; the Canadian experience: 020

Report - Colloquium on the United Nations and the legal problems of space, Constance, 1970: 021

Report - Committee of governmental experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites, Lausanne, 1971 (UNESCO/WIPO/SAT/22): 022

Report (prepared by the Unesco Secretariat), Committee of governmental experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites, Lausanne, 1971 (UNESCO/WIPO/SAT/3): 024

Report of the Committee of governmental experts which met at Lausanne from 21 to 30 April 1971 (UNESCO/WIPO/SAT.2/3): 034

Report - Committee of governmental experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites (2nd), Paris, 1972 (UNESCO/WIPO/SAT.2/14 and Corr. 1): 030

Report - Committee of governmental experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites (3rd), Nairobi, Kenya, 1973 (UNESCO/WIPO/SAT.3/23): 037

Report on the desirability of modifying existing conventions or preparing a new international instrument on the protection of television signals transmitted by communication satellites (17 C/24 and Corr.): 183

Report of the Director-General on the activities of the organization communicated to Member States and the Executive Board in accordance with Article VI.3b of the Constitution (1963 and 1964- .): 184

Report of the Director-General on the feasibility of the pilot project and on possible international arrangements (UNESCO/15 C/60): 276

Report by the Director-General on the work of the Committee of governmental experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites (88 EX/13 and Corr.): 185

Report of the Director-General on the work of the third committee of governmental experts on the problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites (93 EX/23; Add. and Corr.): 186

Report of the General Rapporteur, International conference of states on the distribution of programme-carrying signals transmitted by satellite, Brussels, 1974 (UNESCO/WIPO/CONF.SAT/42): 072

Report - International colloquium on educational satellites and international co-operation, Nice, 1971: 067

Report - Meeting of experts on the draft declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater cultural exchanges, Paris, 1972 (COM-72/CONF.4/4 Rev.): 101

Report - Meeting of experts on international professional arrangements for space broadcasting, Paris, 1971 (COM-71/CONF.5/8): 103

Report - Meeting of experts on the use of space communication for broadcasting, 1968 (COM/CS/68/1/7): 110

Report - Meeting of experts on the use of space communication by the mass media, 1965 (COM/MC/52): 118

Report - Meeting of government experts on international arrangements in the space communication field, 1969 (COM/MD/15): 145

Report - Meeting on management and planning of new communication systems, Paris, 1973 (COM/MD/29): 154

Report - Meeting of panel of officers of the Meeting of experts on the use of space communication by the mass media, 1966 (UNESCO/SPACE/COM/PANEL 1/4): 156

Report - Meeting of Unesco advisory panel on space communication, 2nd session (COM/CS/31/I): 157

Report - Meeting of Unesco advisory panel on space communication, 3rd session, 1967 (COM/CS/164/5): 158

Report - Meeting of Unesco advisory panel on space communication, 4th session, 1968 (COM/SPACE/PANEL/IV/3): 160

Report - Meeting of Unesco panel of consultants on space communication, 5th session, 1969 (COM/CONF/1/2): 161

Report - Meeting of Unesco panel of consultants on space communication, 6th session, 1970 (COM/SPACE/PANEL/VI/3): 164

Report - Meeting of Unesco panel of consultants on space communication, 7th session, 1971 (COM/SPACE/ PANEL/VII/2: 165

Report - Meeting of Unesco panel of consultants on space communication, Paris, 8th session, 1973 (COM/SPACE/PANEL/VIII/2): 166

Report presented by the Drafting Committee, 3rd Committee of governmental experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites, Nairobi, 1973 (UNESCO/WIPO/SAT.3/18): 042

Report - Seminar on regional co-operation for education and development in Africa using space communication, Addis Ababa, 1976 (COM-76/CONF.712/9): 194

Report submitted by the International Telecommunication Union, Meeting of government experts on international arrangements in the space communication field, 1969 (COM/SPACE/5): 151

Report - UNDP/Unesco expert mission to South America to study the feasibility of a regional system of tele-education, 1972-1973 (UNDP/RLA/71/223 - Serial No. FMR/COM/RPC/75/207 "UNDP"): 239

Report - United Nations/Unesco regional seminar on satellite broadcasting systems for education and development, Mexico City, 1975 (A/AC.105/160 and Corr.1): 253

A report by Unesco - Draft declaration of guiding principles on the use of space broadcasting for the free flow of information, the spread of education and greater cultural exchange (COM-72/CONF.4/3): 102

Report - Unesco expert mission to African countries south of the Sahara to make a preliminary study of an African regional satellite system for education, culture and development, 1972 (2869/RMO.RD/FDC): 266

Report - Unesco expert mission to Alaska to study the implications of satellite communication for education, 1970 (2198/BMS.RD/MC): 267

Report - Unesco expert mission to Arab States to assist in establishing a media innovation system using communication satellites for broadcasting, education and development, 1975 (RP/1975-76/4.121.4 - FMR/COM/RPC/75/141): 270

Report - Unesco expert mission to Arab States to make a preliminary study of the use of satellite communication for education and national development, 1970 (2342/RMS.RS/FF): 268

Report - Unesco expert mission to Arab States to study a regional satellite for education, communication and culture in the service of development, 1973 (2886/RMO.RD/FDC): 269

Report - Unesco expert mission to Brazil to make a preparatory study of the use of satellite communication for education and national development, 1968 (COM/WS/86): 271

Report - Unesco expert mission to India to make a preparatory study of a pilot project in the use of satellite communication for national development purposes, 1967 (COM/WS/51): 272

Report - Unesco expert mission to Pakistan to study the possibilities of using space communication for education and development, 1969 (COM/WS/142): 273

Report - Unesco expert mission to South America to make a preparatory study of the use of satellite communication for education and national development, 1969 (1903/BMS.RD/COM): 274

A report by Unesco on item 2.C of the Agenda A/AC.105/C.1/L.33 - use of satellite broadcasting for the advancement of education and training (A/AC.105/C.1/L.38): 222

Report by Unesco - reports of the Working group on direct broadcast satellites: comments received from governments, specialized agencies and other competent international bodies (A/AC.105/79): 228

Report by Unesco, United Nations scientific and technical sub-committee, New York, 9th session, 1972 (A/AC.105/C.1/L.45): 221

Report by Unesco - United Nations/Unesco African regional seminar on satellite broadcasting systems for education and development, Addis Ababa, 1973 (COM/MD/27): 242

Report by Unesco - United Nations working group on direct broadcast satellites, New York, 3rd session, 1970 (A/AC.105/79): 228

Report by Unesco - United Nations working group on direct broadcast satellites, New York, 4th session, 1973 (A/AC.105/WG.3/L.5): 230

Reports and papers on mass communication (41): 080; (53): 189; (60): 014; (61): 096; (66): 180; (74): 202; (77): 044; (78): 017

Reports on Unesco activities - space activities and resources - a review of the activities and resources of the United Nations, of its specialized agencies and of other competent international bodies relating to the peaceful uses of outer space (1960- .): 217

Research on and promotion of the international flow of information based on mutual respect for differing cultural values (16 C/4- . C/4): 050

Resolution adopted by the Committee on 9 July 1973 - Committee of governmental experts on problems in the field of copyright and of the protection of performers, producers of phonograms and broadcasting organizations raised by transmission via space satellites (3rd), Nairobi, 1973 (UNESCO/WIPO/SAT.3/20): 043

Resolution adopted by the Intergovernmental committee of the international convention for the protection of performers, producers of phonograms and broadcasting organizations at its third ordinary session, Geneva, 1971 (UNESCO/WIPO/SAT.2/INF.4): 035

Resolution adopted respectively by the Intergovernmental copyright committee and the Executive committee of the Berne union at their eleventh ordinary session and first extraordinary session, Geneva, 1971 (UNESCO/WIPO/SAT.2/INF.3): 036

Resolutions, Unesco General Conference records: 182

Responsible presentation of the news in the space era (UNESCO/SPACE/COM/17): 136

The Rio Grande do Norte experiment in the context of the Brazilian educational broadcasting: 261

Rocky Mountains: 154, 155, 193, 201, 258

Satellite applications for education, culture and development (COM/WS.333): 201

Satellite broadcasting in the context of communication planning: 086, (COM-75/CONF.703/3): 262

"Satellite communication" - "Impact of communication satellites on the educational broadcasting system to be designed for Indonesia" - "Economics of communication satellite introduction into the proposed educational broadcasting system of Indonesia" (MC/3200/2408): 092

Satellite communication for India: 187

Satellite communication for social development (COM-76/CONF.712/6): 197

Satellite communication system (2888/RMO.RD/FDC): 065

A satellite communication system for domestic and regional development in South East Asia: 002

Satellite Instructional Television Experiment (SITE): 251

The satellite option is the Unesco/ITU feasibility study of a regional tele-education system for the countries of South America (COM-75/CONF.703/1): 263

Satellites in the context of communication policies and planning (COM-76/CONF.712/3): 198

Satellites for education and development in the African context: 053

Satellites to serve world communications needs: 188

Satellites, system planning and communication policies: some economic considerations: 264

Selected bibliography on the utilization of satellites for educational purposes (ED-76/WS/55): 192

Selective list of studies and reports on communication satellite projects (COM/WS/349): 193

Seminars:

National seminar on the use of a domestic satellite communication system (Jakarta, 1974): 169-170

Seminar on regional co-operation for education and development in Africa using space communication (Addis Ababa, 1976): 194-199

United Nations/Unesco African regional seminar on satellite broadcasting systems for education and development (Addis Ababa, 1973): 242-252

United Nations/Unesco regional seminar on satellite broadcasting systems for education and development (Mexico, 1975): 253-265

Social and cultural impact of satellite-based television (COM.7/WS/5): 100

Software planning for a satellite communication system: 169

Some legal aspects of television transmission by satellites (UNESCO/SPACE/COM/7): 137

Some lessons during the setting up of SITE (COM-76/CONF.712/7): 199, 265

Some possible social effects on space communication (UNESCO/SPACE/COM/3): 138

Some social perspectives of satellites communication (MC/723/2503): 071

South America: 154, 164, 165, 192, 193, 221, 222, 239, 243, 263, 274

South America - preparatory study of the use of satellite communication for education and national development, 1969 (1903/BMS.RD/COM): 274

South America - study of the feasibility of a regional system of tele-education, 1972-1973 (UNDP/RLA/71/223 - Serial No. FMR/COM/RPC/75/207 "UNDP"): 239

A Soviet scientist looks at "Sputnik": 211

Space activities and resources - a review of the activities and resources of the United Nations, of its specialized agencies and of other competent international bodies relating to the peaceful uses of outer space: 217

Space communication: 205, 206

Space communication for broadcasting: 207

Space communication for developing countries: India as an example (UNESCO/SPACE/COM/14): 139

Space communication - draft programme and budget for 1973-1974: 208

Space communication for education in the Unesco's programme: 069

Space communication and the mass media: a Unesco report on the occasion of the 1963 Space Communication Conference, Geneva (Reports and papers on mass communication No. 41): 080

Space communication for news transmission; co-operation between broadcasters and news organizations (COM-71/CONF.5/5): 109

Space communication in the promotion of Unesco's aims (CL/1673 Annex): 081

Space communication and Unesco objectives: 209

Space flight and the rule of law: 175

Space research and a better earth: 173

The spaceships of the prophet Ezekiel: 011

Spaceships on satellite orbits round the earth: 176

Space vehicles and their use in oceanography (IOC/INF.138-AVS/9/89): 235

Spin-off: the fruit of space research: 063

Statement by Julian Behrstock, United Nations economic and social council, New York, 1971: 238

Statement by Henri Dieuzeide, International colloquium on educational satellites and international co-operation, Nice, 1971: 069

Statements by Tor Gjesdal:

United Nations conference on the exploration and peaceful uses of outer space, Vienna, 1968 (COM/FF/1934/1208): 236

United Nations working group on direct broadcast satellite, 1st session, 1969: 225

United Nations working group on direct broadcast satellite, 2nd session, 1969: 227

Statement by Viatcheslav N. Kulebiakin, United Nations/Unesco African regional seminar on satellite broadcasting systems for education and development, Addis Ababa, 1973: 252

Statement by J. Alphonse Ouimet, Unesco General Conference, 1968: 172

Statement by M.W. Robinson, Meeting of experts on the use of space communication for broadcasting, 1968 (COM/CS/68/1/INF.3): 116

Statements by E. Lloyd Sommerlad:

British interplanetary society symposium, Southampton, 1972: 012

Eurospace information meeting, Stockholm, 1972: 053

German foundation for developing countries conference, Munich, 1972: 061

International colloquium on educational satellites and international co-operation, Nice, 1971: 070

International conference of states on the distribution of programme-carrying signals transmitted by satellite, Brussels, 1974: 079

International Telecommunication Union symposium on "education and telecommunications" at TELECOM 71, Geneva, 1971: 084

International Telecommunication Union symposium on space and radio communications, Le Bourget, 1971 (COM/FF/1514/23/6/71): 085

International Telecommunication Union symposium on space and radio communications, Le Bourget, 1973: 086

International Telecommunication Union world administrative radio conference, Geneva, 1971 (CC/FF/1514/23/6/71): 089

National seminar on the use of a domestic satellite communication system, Jakarta, 1974 (COM/2243/030974): 170

United Nations committee on the peaceful uses of outer space, New York, 1972: 218

United Nations legal sub-committee, Geneva, 1974 (COM/1363/1505): 220

United Nations panel meeting on satellite instructional television systems, New Delhi, 1972: 241

United Nations scientific and technical sub-committee, New York, 1973: 223

United Nations scientific and technical sub-committee, New York, 1974: 224

United Nations working group on direct broadcast satellite sub-committee, New York, 1970: 229

United Nations working group on direct broadcast satellites sub-committee, New York, 1973: 231

Statements by Jacques Torfs:

International colloquium on educational satellites and international co-operation, Nice, 1971: 068

Conférence prononcée à Abidjan, 1972: 215

Study of the feasibility of launching a pilot project on the use of satellite communication for education and economic development (78 EX/7): 212

Study on the problems arising from wireless and television broadcasts transmitted by space satellites in relation to the protection of broadcasting organizations (UNESCO/WIPO/SAT/8): 026

Study on the problems arising from wireless and television broadcasts transmitted by space satellites in relation to the protection of performers (UNESCO/WIPO/SAT/6): 027

Study on the problems arising from wireless and television broadcasts transmitted by space satellites in relation to the protection of producers of phonograms (UNESCO/WIPO/SAT/7): 028

Study of problems in the field of copyright raised by radio and television transmission via communication satellites (UNESCO/WIPO/SAT/5): 029

Symposia:

British interplanetary society symposium, Southampton, 1972: 012

International Telecommunication Union symposium on "education and telecommunications" at TELECOM 71, Geneva, 1971: 084

International Telecommunication Union symposium on space and radio communications (2nd), Le Bourget, 1971: 085

International Telecommunication Union symposium on space and radio communications (3rd), Le Bourget, 1973: 086

Technical aspects of direct broadcasting (UNESCO/SPACE/COM/6): 140

Technical possibilities for radio and television services by satellites (UNESCO/SPACE/COM/19): 141

Technical Report - Unesco expert mission to Arab States to assist in establishing a media innovation system using communication satellites for broadcasting, education and development, 1975 (RP/1975-76/4.121.4 - FMR/COM/RPC/75/141): 270

Telecommunication satellites and the European Broadcasting Union (UNESCO/SPACE/COM/18): 142

Telecommunication and the transmission of news (UNESCO/SPACE/COM/4): 143

Today's trends in world communication; a special Unesco report: 214

Traffic jam on the broadcasting bands: 009

Transfer of information between libraries (UNESCO/SPACE/COM/9): 144

Transmission of information through various media: 007

Two decades in the world of the mass media: 097

The Unesco conference satellite experiment: 204

Unesco Declaration of guiding principles on the use of satellite broadcasting for the free flow of information, the spread of education and greater exchange (A/AC.105/109 and Corr.1): 219

Unesco expert missions: 266-274

UNESCO/ITU co-operation in communication planning, International Telecommunication Union plenipotentiary conference, Malaga-Torremolinos, 1973 (Document No. 82): 083

Unesco's programme in space communication: 062, 275

The United Nations and space communications (COM/SPACE/6): 152

The use of communication satellites in education, science and culture by the I.F.T.C. (Document No. 384): 153

The use of communication satellites for information and education: 066

The use of satellite communication for education and economic development (UNESCO 15 C/60): 276

The use of satellites for educational television in developing countries: 061

The use of satellites in the fields of information and education: 277

The use of space communication for education and development - evolution and prospects: 070

The use of space communication to further Unesco's aims (12 C/5- . C/5): 004

The use of space communication for information, education and cultural exchange: 021

The use of space communication for information, education, culture and development (COM/FF/1514/23/6/71): 085

The use of space communication for information and education purposes: 278

The value of manned flights to the moon: 008

Water: the vital essence of life; satellites, hydrology and the international hydrological decade: 237

On the way to inhabited space: 200

What communication satellites mean to the developing countries: 191

What shall we gain by the conquest of space: 056

What we know in cross-cultural broadcasting: satellites (Reports and papers on mass communication No. 77): 044

Who owns equipment left on the moon?: 279

Why we are outward bound: 055

Working paper to serve as basis for report by the Director-General to the 1968 General Conference of Unesco on international arrangements in the space communication field (COM/CS/68/1/4): 117

Working paper to serve as basis for report by the Director-General to the 1968 General Conference of Unesco on international arrangements in the space communication field (COM/CS/164/3): 159

The world of the communication satellite: 019

World prospects for the mass media: 280